NATUR CYMRU

The Nature of Wales

Rhif/Number 20 • Autumn/Hydref 2006

In this edition:

- Mothing
- Denbighshire flora
- Lower plants
- Llŷn heaths
- Severn barrage
- Yr helygen

PLUS

Books, News, Comment...

NATUR CYMRU
The Nature of Wales

Golygydd/ Editor:
James Robertson
naturcymru@gmail.com

Golygydd Cynorthwyol/
Assistant Editor:
Mandy Marsh
Tel: 01248 385574
m.marsh@ccw.gov.uk

Tanysgrifiadau/Subscriptions:
£12.50 y flwyddyn/per year

A fyddech gystal ag anfon sieciau yn daladwy i:
Please send cheques payable to **Natur Cymru** to:

Natur Cymru
Maes y Ffynnon
Penrhos Garnedd
Bangor
Gwynedd
Wales
LL57 2DW

Cwmni Cyfyngedig trwy Warant yw Natur Cymru Cyfyngedig, ac nid yw'n gwmni sy'n gwneud elw. Mae wedi ei gofrestru yng Nghymru a Lloegr, rhif 5636217. Nid barn Natur Cymru Cyfyngedig na'r Golygyddion a leisir yn y cylchgrawn hwn o angenrheidrwydd.

Natur Cymru Limited is a non-profit making Company Limited by Guarantee, registered in England and Wales, no. 5636217. The views expressed in this magazine are not necessarily those of Natur Cymru Limited or of the Editors.

Cyhoeddir *Natur Cymru* bedair gwaith y flwyddyn, mis Mawrth, mis Mehefin, mis Medi a mis Rhagfyr. Cyhoeddir erthyglau yn yr iaith wreiddiol. Mae crynodeb yn yr iaith arall yn dilyn pob erthygl. Ceir rhai colofnau arferol yn y ddwy iaith. Os dymunwch gael cyfieithiad o unrhyw erthygl, cysylltwch a'r Golygydd.

Bwriedir i *Natur Cymru* hyrwyddo a chyfnewid gwybodaeth am fioamrywiaeth a hyrwyddo dadl. Os oes gennych wybodaeth, erthyglau neu waith celf y credwch a allai fod o ddiddordeb i'r darllenwyr, cysylltwch â'r Golygydd os gwelwch yn dda.

Natur Cymru is published four times per year, in March, June, September and December. Articles are published in the language in which they are submitted. They are followed by summaries in the other language, and some regular columns appear in both languages. If you would like to receive a translation of any article, please contact the Editor.

Natur Cymru is intended to promote the exchange of information about biodiversity and encourage debate. If you have information, ideas for articles or artwork which you think might be of interest to readers, please contact the Editor.

Mae *Natur Cymru* wedi'i argraffu ar bapur di-glorin a ddaw o goedwigoedd cynaliadwy sy'n cael eu rheoli.
Natur Cymru is printed on chlorine-free paper sourced from managed and sustainable forests.

Clawr blaen / Front cover:
Hare and Curlews on Pen Llŷn
Kim Atkinson

ISSN 1742-3740

Argraffwyd gan/Printed by: LS Printworks, Amlwch • Dylunio gan/Design by: Mel Parry Design, melparry@beeb.net

NATUR CYMRU CYNNWYS • CONTENTS

Golygyddol / Editorial ..... 2 - 3
James Robertson

The commons and heaths of the Llŷn Peninsula ..... 4 - 8
Richard Neale

Llên y llysiau - yr helygen yng Nghymru ..... 9 - 12
Twm Elias

The dilemma of the Severn barrage 13- 16
Morgan Parry

Putting Denbighshire on the botanical map ..... 17 - 20
Jean Green

A view from the touchline 21- 25
Tony Prater

Moth recording ..... 26 - 28
Steve Moon

SNAP in the Hafren Forest ..... 29 - 32
Tammy Stretton

A taste of the landscape ..... 33 - 35
James Robertson

Combing the shores for *Sabellaria* ..... 36 - 40
Natasha Lough

Lower plants set for a higher profile ..... 41 - 44
Ray Woods

NODWEDDION ARFEROL / REGULAR FEATURES

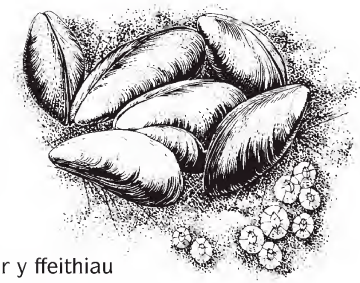
Silff lyfrau amgylcheddol / Green bookshelf James Robertson 45

Marine Matters Ivor Rees 46

Mammal news Kate Williamson 47

Hysbysfwrdd / Noticeboard Mandy Marsh 48

NATUR CYMRU GOLYGYDDOL



Wrth feicio o amgylch un o Ynysoedd Heledd yr haf hwn, cefais fy syfrdanu o weld cyn lleied o bobl a oedd o gwmpas. Roedd y traethau gwyn, disglair, hyn yn oed, yn wag - llefydd anghroesawus i drigolion lleol ac i ymwelwyr fel ei gilydd, fe ymddengys.

Roedd pethau'n wahanol iawn ddwy neu dair cenhedlaeth yn ôl, pan oedd cymunedau gwledig fel y rheini ym Mhen Llŷn yn dibynnu ar grafu bywoliaeth ar y tir. Wrth gwrs, roedd bywyd yn galed; brwydr yn erbyn natur oedd ffermio. Ond roedd y cysylltiadau â'r tir, a rhwng y bobl a'i gilydd, yn ddwfn iawn. Mae disgrifiad Richard Neale o fywyd ei gyndeidiau yn ein hatgoffa o'r dimensiwn cymdeithasol a oedd yn rhan o'r ymdrech i achub natur. Os oes modd ail-flodeuo rhai rhannau o diroedd comin a rhosydd colledig Pen Llŷn, yna, trwy gyfrwng gweithgareddau dyn, fe ellir adfer y cysylltiadau rhwng y dirwedd a'r bobl yn ogystal.

Un o'r prif elfennau a ddylai ein cysylltu â'r dirwedd yr ydym yn byw ynddi yw bwyd. Yn ystod cyfnod hen daid a hen nain Richard, fe fyddai hanfodion bywyd wedi cael eu tyfu, eu magu neu eu pysgota'n lleol. Ond erbyn heddiw, mae hi'n dipyn o her ceisio byw ar fwyd sydd wedi ei gynhyrchu o fewn deng milltir ar hugain. Ar ôl aros yn Aberdaron, penderfynodd Ian Walker, y prif gogydd o Lundain, fynd i'r afael â'r her hon, ac ysgrifennodd lyfr yn sôn am ei ymdrechion - *Thirty Miles - A Local Journey in Food*. Fel rhywun sydd â diddordeb mawr mewn bwyd lleol, roeddwn i'n awyddus i adolygu'r llyfr hwn - ond allwn i ddim ymatal rhag gwneud fy nghyfraniad fy hun at y drafodaeth ynghylch bwyd lleol.

Ian Kimber

Eudonia mercurella

Er mwyn gallu gwarchod natur a chael economi fodern ochr yn ochr â'i gilydd, rhaid rhoi trefn ar y ffeithiau a pherswadio'r rheini sy'n ddi-hid o adar a gwenyn fod yn rhaid iddynt gyfaddawdu. Cafodd Tony Prater yrfa faith yn gwneud yr union waith yma. Mae wedi chwarae rhan hollbwysig mewn nifer o ymgyrchoedd o'r fath ar ran bywyd gwyllt, a defnyddiol iawn yw cael clywed yr hyn sydd ganddo i'w ddweud am y cynnydd a wnaed yn ystod y degawdau diwethaf.

Weithiau, fe allwch ennill ryw ymgyrch neu'i gilydd, a sylweddoli wedyn fod yn rhaid i chi fentro i faes y gad drachefn. Dro arall, byddwch yn cael eich gorchfygu gan rymoedd mwy pwerus, gan orfod treulio peth amser wedyn yn llyfu eich clwyfau. Y tro hwn, mae cais o'r newydd i adeiladu argae mawr ar draws Afon Hafren er mwyn cynhyrchu ynni adnewyddadwy yn cael ei grybwyll fel dewis 'gwyrdd' - rhaid mentro i faes y gad unwaith eto, fe ymddengys. Clywais y dadleuon am y tro cyntaf yn y 1980au. Yn ddi-os, mae'r awydd i adeiladu ar raddfa fawr fel hon yn rhan o'r broblem sy'n achosi cynhesu byd-eang yn hytrach na bod yn ateb i'r broblem. Nid yw'r ffaith fod cynlluniau dramatig i greu ynni ar raddfa eang yn apelio i'r rheini sy'n gwirioni ar roi eu pwerau eu hunain ar waith yn fy synnu o gwbl. Mae hi'n llawer anos chwilio am atebion lleol a chynaliadwy.

Fe allai plannu carped o gonifferau ar y tir a adwaenir bellach fel coedwig Hafren fod wedi niweidio bywydau adar rhydio a bywyd gwyllt arall y corstir rhyfeddol hwn am byth. Ond, fel y dengys y gwaith adfer brwd yng nghoedwig Hafren, fe all dyfodol o fath arall ddod i ran tirweddau a ystyrid ers talwn gan amgylchedwyr fel rhai a oedd wedi ffarwelio am byth â byd natur. Ac, wrth i'r bywyd gwyllt ddychwelyd, caiff cysylltiadau cymdeithasol eu hadfer.

James Robertson

NATUR CYMRU EDITORIAL

Cycling around a tiny Hebridean island this summer, I was struck by the complete absence of people engaged with the landscape. Even the shell-white beaches were empty, apparently inhospitable places to locals and tourists alike.

It was not like this two or three generations ago, when rural communities like those on the Llŷn peninsula depended on wresting a living from the land. Lives were hard, farming seemed a battle against nature, but connections with the land, and between people, ran deep. Richard Neale's evocation of the life of his forebears reminds us of the social dimension to the struggle to save nature. If some pieces of Llŷn's lost heaths and commons can be made to bloom again, the bonds between this landscape, shaped by human activity, and the people close to it can also be restored.

One of the strongest bonds which should connect us to the landscape we live in is food. All the staples of life would have been grown, reared or fished locally when Richard's great grandparents were alive, but now it is a challenge to be able to subsist on food produced within thirty miles. The London chef Ian Walker, after a stay in Aberdaron, decided to take up this challenge, and write a book about it, called *Thirty Miles - A Local Journey in Food*. As someone with a strong personal interest in local food, I thought I should review this book, but then could not resist making my own contribution to the local food debate.

To conserve nature alongside a modern economy means marshalling facts and persuading those unmoved by sentiment for birds and bees to make compromises. Tony Prater has had a long career doing just this in Wales. He has been in the thick of many campaigns on behalf of wildlife, and it is instructive to have his reflections on the progress that has been made in recent decades.

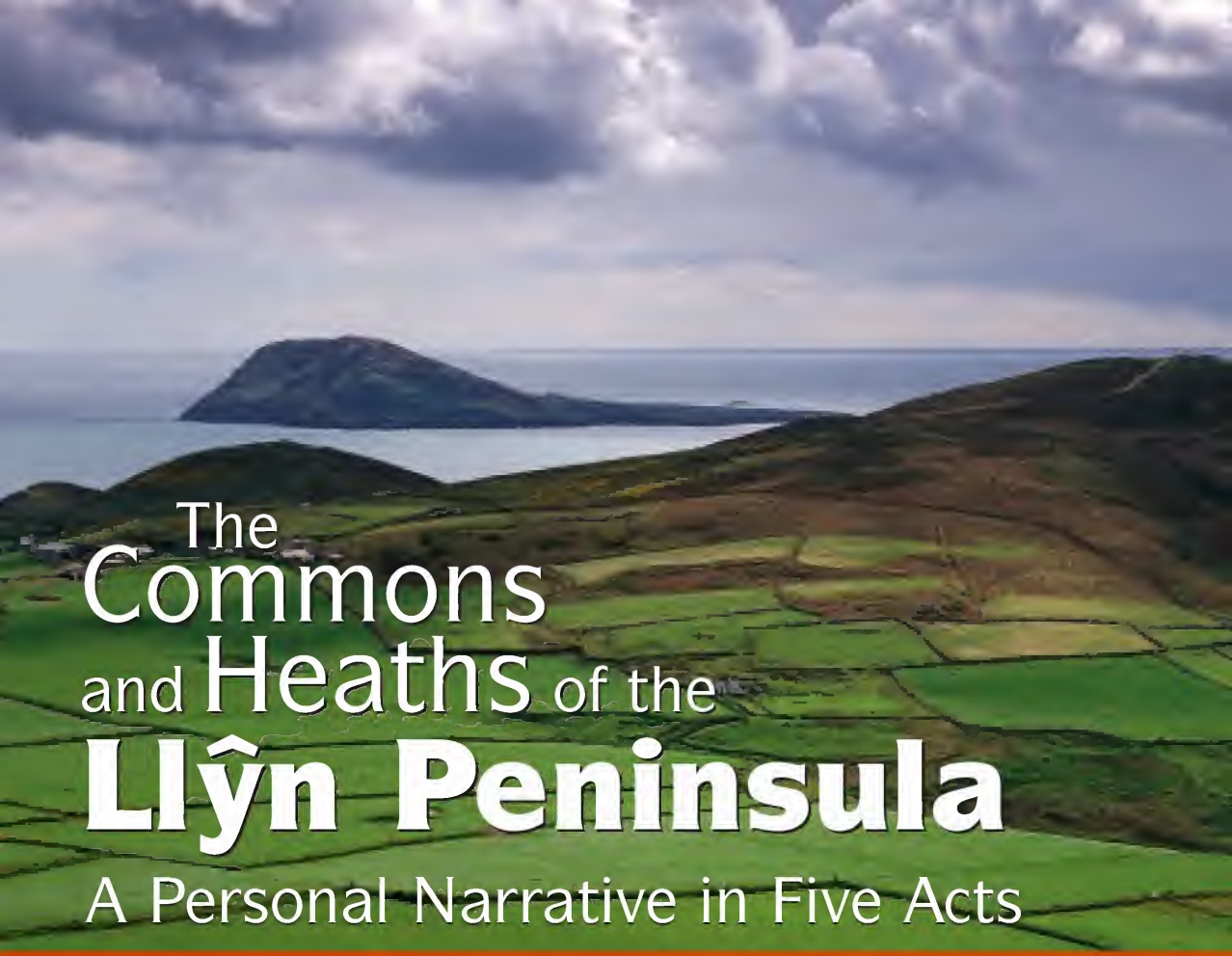
Sometimes you win a campaign, only to have to fight it all over again; other times you loose out to more powerful forces, and then have a chance to heal the damage that has been done. The revival of the proposal to build a vast barrage across the Severn Estuary, to generate renewable energy, this time being dressed up as a green option, is an example of the former. I heard the arguments first time around, in the early 1980s, and have no doubt that the urge to build big like this is part of the problem that is causing global warming, not part of the solution. That dramatic schemes to generate huge amounts of power appeal to those fascinated by the exercise of power does not surprise me. It is much harder to search for local, sustainable solutions.

The planting of a blanket of conifers on what is now Hafren forest could have brought a permanent end to the lives of waders and other wildlife on a wonderful area of moorland and bog. In fact, as the energetic restoration work at Hafren shows, other futures can await landscapes which environmentalists once thought were permanently lost to nature. And, as the wildlife returns, social links are restored.

James Robertson

Joanna Robertson

Bay on the north Llŷn coast



The Commons and Heaths of the Llŷn Peninsula

A Personal Narrative in Five Acts

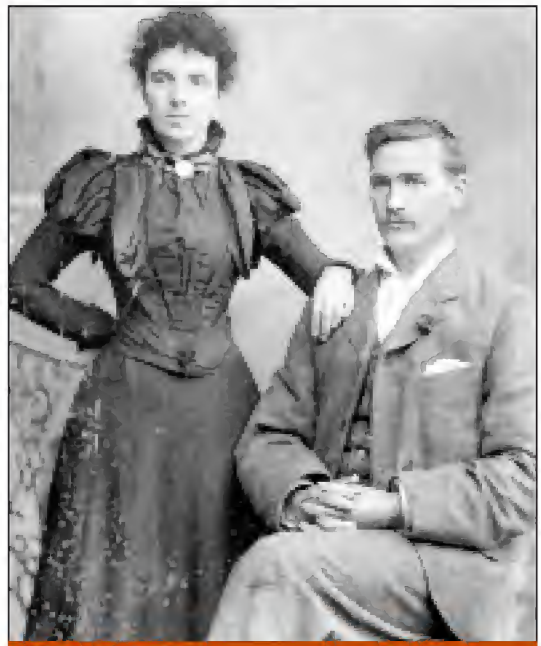
The coastal heaths of Llŷn, remnants of large areas of common land

Heathland is a habitat of rare beauty and great atmosphere. It is also a cultural landscape, shaped by the lives of the people who used it, often as commoners, seldom as owners. Here ***RICHARD NEALE*** *takes an imaginative journey back to the colourful heaths of Llŷn's past, and a look forward to an era of heathland renewal.*

I The woman picks her way carefully down through the heather, child holding onto her long black dress; cloud-capped mountain behind her. She carries under her arm a sack full of charred heather and gorse stalks.

Later, on the hearth of her home she says to the child in her Caernarfonshire accent, *"Dos i nôl tipyn o ddŵr o'r pin tra dwi'n cyna tan efo'r poethwal ma"*. It is baking day in the quarrying village of Llithfaen on the north coast of the Llŷn peninsula; the sack of *poethwal* is to heat the oven, and the heather-clad mountain is Yr Eifl. It is 1906 and the woman is Elin Baum, my great grandmother; the child, Sarah Ann, my grandmother. After the bread is baked, when the oven is a little cooler, they will bake *cacan llys*, made with bilberries, gathered from that same hillside above the village. Whilst they bake, Elin's husband - my great grandfather Robert Baum - is working in the great granite quarries of Yr Eifl, blasting brutally heavy boulders out of the heath to make sets to pave the streets of Manchester.

©Turtle Images



The author's great grandparents, Elin and Robert Baum, who lived and worked on the edge of a heath at Llithfaen.

The history of the heaths of Llŷn is one of exploitation and destruction. In the middle ages vast tracts of the peninsula were unenclosed pasture, the soil too wet or too shallow to yield to the ox-drawn plough. These were the commons of Llŷn. Originally under the ownership of the princes of Gwynedd, they had always been a vital part of the way of life in Llŷn. For centuries, they were the defining feature of the landscape.

Yet, even then, much of the peninsula was highly productive farmland and had been since prehistory; but you were never far from the common. Like Hardy's Egdon Heath, it was the ubiquitous brooding presence. It inspired our folklore and, with the churring of its nightjars and the piping of its curlews, provided the inescapable background to human life. The heath was always a battleground in the struggle between people and nature. And for a brief period in the 1810s, one of those heaths became literally a battleground. The heath was Rhos Hirwaen, now surviving in name only.

From time immemorial, the poor had depended on access to this common to such an extent that they not only grazed their animals on it, but they also built their homes on it, simple mud and thatch *tyddynnod*. When they were not fishing, they laboured to create earth-banked enclosures amongst the gorse and bracken and grew a few vegetables in the poor soil. It should not be a surprise, therefore, to learn that when the landlord decided to enclose the common and evict them from the land they had considered theirs, they rebelled. Little is known of the stand-off that ensued, but the fact that the militia was sent in to quell the confrontation speaks volumes of the commoners' defiance.

This dimly remembered episode gives a human face to the fact that, between 1810 and 1820, roughly 10,000 acres of common in the south-western part

Tony Jones / rhiw.com

Ifan Pig y Parc, one of the last of a long line of *tyddynnwyr* to farm the stony slopes of Mynydd Rhiw.

of the peninsula - including Rhos Hirwaen - were cleared, enclosed, drained and put to the modern iron plough. New farms were created with more progressive tenants in a process that has been called 'internal colonisation'. But even today, some of the former 'encroachments', with their mud-walled *tyddynnod* now slated and rendered, can be found as islands marooned in a sea of ordinary farmland.

What the Enclosures Movement left untouched was gradually whittled away by piecemeal encroachments over the next century. But the *coup de grace* was yet to come. We now know that the final remnants of those once mighty commons that were made up of wet '*rhos*' pasture were all but expunged from the map of Llŷn in the post-war years of agricultural advancement. The drier heaths of the hillier parts of the peninsula fared a little better and many of them survive as priceless remnants of a lost landscape.

The flat-capped farmer tugs roughly at the lively young collie's lead as he walks towards me. His expression is a combination of curiosity and suspicion. Curiosity, because it is seven years since anyone has lived in the lonely cottage which stands amongst the lichen-covered boulders and gorse bushes a short walk from his own whitewashed cottage. Suspicion, because I'm an incomer and he's the last of a long line of farmers to scrape a living from this stony hillside.

He introduces himself as Ifan Pig y Parc and we begin the first of many conversations I was to have with him over the next four years. It is 1981 and we are standing amongst a patchwork of small fields and rough pasture covered with rounded gorse bushes, clipped into tight green pincushions by Ifan's nibbling sheep. In front of us is the broad sweep of Porth Neigwl, behind us the heather covered whale-back ridge of Mynydd Rhiw.

He lifts his stick and points to each of his neighbours' houses, scattered over the hillside, all of them built to the same simple design as his own cottage: Pig y Parc. He moves his stick around in a great theatrical circle stabbing the air as he names the cottages: “Fron Deg, Bryn Ffynnon, Tan yr Ardd, Trwyn Coch, Bryn Morfa, Weun, Fron Oleu, Tan y

Tony Jones / rhiw.com

A typical *tyddyn* of the nineteenth century, one of many that were built as encroachments onto common land at Rhiw.

Jeremy Moore/CCW

Garn, Tan y Bwlch…" He turns to me and says in the same lyrical language that my great grandmother would have used. "I remember a family in every one of these houses - all of them farming the land and going to chapel on Sunday". He raises his voice enquiringly. "Who lives here now?" Afraid to answer, I shrug my shoulders. *"Estroniaid!"* (Foreigners!) he shouts, bringing his stick down with a thud on the ground beside him.

I found out later that every one of the cottages he named, apart from mine and one other, were holiday cottages. That night, I fancifully thought of Ifan and his wife Maggie as the last of their race, living alone with the ghosts of a lost community. But he was not entirely alone. He was one of a small band of part-time farmers - men and women - that ran smallholdings around Mynydd Rhiw at that time, several of them depending on access to the common for summer grazing.

Ifan was famous in the area for training sheepdogs; his other pastime was burning gorse and heather. Despite this, I would pass mounds of bell heather dotted with bedstraw on my walks to the well, which was built in a cleft amongst the boulders about 50 yards from the cottage. I would disturb black palmate newts as I scooped my bucket into the crystal cold water and, in the other direction from the cottage, I would pick my way through early purple orchids and yarrow on the way through the small field to the pit where I emptied the 'Elsan' bucket.

IV It is now twenty-one years since I carried the last of my few belongings up the green lane that links the cottage to the outside world. I have decided to take a walk to see how my former home amongst the gorse and heather of Mynydd Rhiw has fared.

My neighbour Ifan is long gone; his secluded home is now yet another holiday cottage. The mountain common is no longer farmed and his smallholding is now un-grazed and is ruled by a brutal hegemony of European gorse, bracken and tussocks of cocksfoot grass.

As I look out over what was once an intricate patchwork of field and heath, born of the labour of generations of *tyddynnwyr*, I try to persuade myself that what looks like dereliction is in fact nature reclaiming what was once hers. But the echoes of a lost community return to trouble me. In these times of global warming and overcrowding, it is easy to think that mankind's relationship with nature is always negative. But there are places where the tension between people and their environment has created landscapes of extraordinary beauty and, yes, flourishing, diverse wildlife habitats; and this was indeed one of those places.

Pleithiad Cymdeithas a Chynefin ym Mhen Llŷn

Mae cwlwm cenedlaethau yn uno Richard Neale â gweundiroedd Pen Llŷn. Mae'r brithwaith o diroedd comin yn dwyn atgofion o fywyd caled, chwarelyddol ei gyndeidiau yn Llithfaen ac o gyfnod yn ei hanes yntau pan fu'n byw ar gyrion Mynydd Rhiw ymhlith cymuned fechan, fregus o dyddynwyr a arferai droi eu defaid i'r mynydd yn ystod yr haf. Caiff ei atgoffa hefyd o'r tyndra a grëwyd yn y gorffennol wrth i landlordiaid amddifadu tenantiaid o'u hawliau a'u hen arferion ar y tiroedd comin hyn.

Cafodd gweundiroedd Pen Llŷn eu defnyddio'n helaeth dros y canrifoedd - a'u haberthu yn enw cynnydd. Collwyd 10,000 erw o dir comin yn ne-orllewin y penrhyn rhwng 1810 a 1820 a diflannodd erwau lawer o rostir gwlyb oherwydd y gwelliannau amaethyddol a ddigwyddodd ar ôl yr ail ryfel byd.

Hanes pobl yw hanes gweundiroedd Pen Llŷn. Yr her bresennol, wrth i fudiadau ddatblygu cynlluniau i adfer y cynefin hwn, yw sicrhau bod gweundiroedd y dyfodol yn rhan hanfodol o fywyd y gymdeithas gymysg o drigolion sydd heddiw yn byw o'u cwmpas.

I thought about the future for all the other heaths of the peninsula. How can biodiversity strategies and conservation plans embrace this human element in a world where people's expectations of life have changed so much? Is there any point in preserving a habitat, when the way of life that created it is gone?

Defeated, I shake my head, and smile when I consider what Elin Baum and Ifan Pig y Parc would have made of such questions. As I turn to make my way back up the lane to the car, all I can really be sure about is that these places were an important part of their lives, and we should never forget that their lives were an important part of these places.

A century has passed since my grandmother gathered *poethwal* on Yr Eifl. I'm in a meeting of the *Cadw'r Lliw yn Llŷn* initiative, discussing a strategy for the conservation of the few surviving heaths of Llŷn.

Despite hearing about the multitude of pressures that continue to threaten the remnant heaths of the peninsula, the tone of the meeting is optimistic. We hear that an impressive amount of work has already been done. This includes restoring traditional boundaries, improving public access and implementing habitat monitoring programmes.

We go on to discuss strengthening the partnership and preparing a strategy that could attract funding to secure the long-term future for these treasured places. As the meeting progresses, I realise that the greatest challenge that faces us is not how to recover the heath in areas where it has been lost: we know that this can be done, with the appropriate financial and technical support. Neither is it the challenge of how to overcome the extreme *isolation* that now threatens most of our heathland species; banks, hedges, conservation headlands, ponds and new wetlands can be created as habitat pathways and 'stepping stones' with the help of neighbouring landowners. No, the greatest challenge that we face is how to ensure that the burgeoning heaths of tomorrow once again have strong bonds with their communities, not only with a few larger farmers and weekend leisure seekers but also a new generation of artisans and smallholders. It is only then that we can feel that our common heathland inheritance is truly alive.

***Richard Neale** is the National Trust's Property Manager for West Snowdonia & Llŷn.*

Peter Wakely/English Nature

Llên y llysiau

Yr helygen yng Nghymru

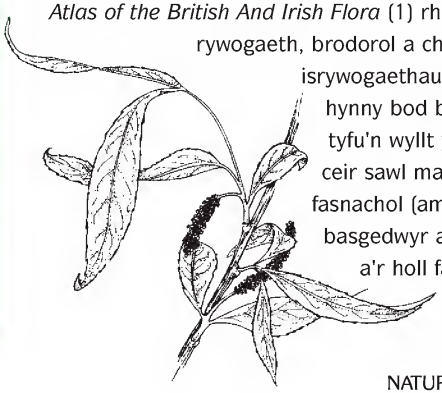
Helyg tociedig yng Ngwent. Pollarded willows in Gwent

Lle fydden ni heb yr helygen? Rydym ni'n ddyledus iddi am nifer o wahanol resymau. Ar wahân i'w gwerth meddyginiaethol, mae'n datblygu i fod yn gynyddol bwysig y dyddiau hyn fel cnwd posib o fiodanwydd. Ond chwaraeodd ran bwysig yn ein bywydau ni mewn ffyrdd eraill hefyd ; dyma'r pren a ddefnyddiwyd i wneud pob math o offer gwledig fel basgedi, cychod gwenyn a chewyll cimwch ac roedd y goeden yn elfen amlwg yn ein llen gwerin a'n harferion. ***TWM ELIAS*** *sy'n ein helpu ni ddarganfod mwy am y goeden hynod hardd ac amrywiol hon.*

Mae'r helygen yn un o'n coed mwyaf cyffredin ac amlycaf ni, yn enwedig ar diroedd corsiog, ochrau afonydd a llynnoedd, ac yn amlwg iawn bob gwanwyn gyda'i sioe fendigedig o flodau 'cywion gwyddau'.

Mathau niferus

Ceir sawl math o helygen a bu hynny'n gryn sialens i dacsonomegwyr dros y blynyddoedd oherwydd yr holl amrywiaethau posib. Yn y *New Atlas of the British And Irish Flora* (1) rhestrir o leia' 12 prif rywogaeth, brodorol a chyflwynedig, ynghyd â nifer o isrywogaethau a chroesiadau niferus. Golyga hynny bod bron i 30 math o helygen yn tyfu'n wyllt yng Nghymru. Ar ben hynny, ceir sawl math o helyg gwiail a dyfir yn fasnachol (am eu gwahanol liwiau) ar gyfer basgedwyr ac mae'r rhywogaethau egsotig a'r holl fathau garddwriaethol nad ydynt (eto) wedi dianc i'r gwyllt yn faes arall.



Paul Glendell/English Nature

yn rheolaidd i gynhyrchu gwiail main ar gyfer basgedwyr proffesiynol a chrefftwyr eraill cefn gwlad.

Am fasgedi o bob math y byddai'r galw mwyaf ac fe'u gwerthid yn y ffeiriau, marchnadoedd lleol a siopau, er enghraifft:
Basgedi Amaethyddol - i hel tatws a ffrwythau, neu i gario bwydydd anifeiliaid.
Basgedi Marchnad - i arddangos a gwerthu bob dim o fara i bysgod.
Basgedi Tŷ - fel y fasged ddillad, basged wnïo, basged neges, basged y gath a hyd yn oed y fasged bicnic i fynd am dro i lan y môr.
Basgedi Ffansi - daeth basgedi addurniadol, wedi eu plethu yn batrymau efo gwiail o wahanol liwiau, yn eu holau yn ffasiynol iawn yn sgîl yr adfywiad fu ym myd crefftau celfyddydol ers y 1990au.

Defnyddiau

Yn hanesyddol, fe'i hystyriwyd yn un o'n coed mwyaf defnyddiol - ddim i adeiladu tai a gwneud giatiau - oherwydd dydy'r pren ddim yn ddigon sylweddol na chryf i hynny o bell ffordd. Ond, yn hytrach, i wneud pob mathau o offer (2) megis handlenni morthwylion a bwyelli llaw; meddyginiaethau, gwaith plethu ac os ydach chi'n ddilynwr Clwb Criced Morgannwg, mae pren helyg yn enwog iawn i wneud batiau criced onid yw?

Gwiail

Mewn rhai ardaloedd, lle mae'r tir yn weddol gorsiog, fel yng Ngwent a Gwlad yr Haf, tyfir mathau arbennig o helyg (yr helygen wiail, *Salix viminalis*, yn bennaf) fel cnwd, hyd heddiw, i gynhyrchu gwiail i'w plethu'n fasgedi a dodrefn 'wickerwork', ac yn y blaen. Ar un adeg ceid 'gwinllan helyg' bron ym mhob ardal, lle cai'r helyg ei fon-dorri

Defnydd hynafol arall o wiail oedd ar gyfer gwneud clwydi a hefyd plethwaith ar gyfer adeiladu waliau mewn hen dai (wedi eu plastro hefo mwd neu blastar calch). Hefyd cychod gwenyn, cewyll i ddal cimychiaid, rhaffau a fframiau cwryglau - mae'r rhestr yn ddiddiwedd. Byddai cynhyrchu'r holl offer a nwyddau hyn yn rhoi gwaith i fasgedwyr a phlethwyr ac yn sail i ddiwydiant cefn gwlad eitha sylweddol ar un adeg.

Golosg a thanwydd

Defnydd arall pwysig o wiail yr helygen yw ar gyfer ei fudlosgi i wneud golosg - ystyrir mai golosg helyg sydd orau ar gyfer arlunio. Ond mae posibilrwydd y daw llosgi helyg yn bwysig mewn cyswllt arall yn y dyfodol, sef fel 'biodanwydd'. Eisoes cynhaliwyd profion maes ar raddfa helaeth yn Fife yn yr Alban i ymarferoldeb tyfu gwiail helyg ar gylchdro tair

blynedd i gynhyrchu cnwd i'w losgi mewn boeleri i gynhyrchu gwres (3). Am fod helyg yn tyfu mor rhwydd yng Nghymru, gall ei dyfu fel 'biodanwydd' brofi'n gaffaeliad i'r economi amaethyddol - fel y cynydda pris olew a phetrol yn y dyfodol.

Paul Glendell/English Nature

Defnydd meddygol

Mae'r helygen yn enwog am ei defnyddiau meddyginiaethol - yn enwedig y rhisgl ar gyfer lleihau gwres twymyn ac atal poen chryd cymalau, ac ati. Ceir cofnod cynnar o hynny yn rysetiau Meddygon Myddfai yn y 12fedG. Y gred oedd bod planhigyn fel yr helygen yn gweithio drwy 'ddewiniaeth sympathetig', a bod arwydd o'i werth meddygol yn amlygu ei hun drwy 'athrawiaeth yr arwyddnodau' - hynny yw, bod rhyw nodwedd o'r planhigyn yn arwydd o'i ddefnydd. Yn yr achos hwn yr arwydd oedd y cynefin - planhigyn y gwlypdir yn dda i iachau afiechydon godai o effeithiau gwlybaniaeth onide?

Ond bu rhaid aros tan ddiwedd y 19g i gael gwybod natur y cyffur gweithredol. Erbyn hynny, roedd technegau cemegol wedi datblygu'n ddigon da i bobl fedru dadansoddi a phuro amryw o gemegau meddyginiaethol o blanhigion - gan gynnwys y cemegyn defnyddiol o'r helygen oedd yn lladd poen. Enwyd hwn yn asid salisylig ar ôl yr helygen (Salix) a daeth ar y farchnad, ar ffurf asid asetyl-salisylig, a than yr enw masnachol Aspirin gyntaf yn 1899 (4).

Heb os, Aspirin oedd un o ddarganfyddiadau meddygol pwysica'r cyfnod modern ac mae cemegwyr yn dal i ddarganfod defnyddiau newydd iddo hyd heddiw. Mawr yw ein dyled i'r Helygen.

Llên gwerin

Mae cryn dipyn o lên gwerin am yr helygen, a llawer ohono yn codi o'r disgrifiad yn Salm 137 o'r Iddewon ynghaeth ym Mabilon: *Wrth afonydd Babilon, yno yr eisteddasom, ac wylasom, pan feddyliasom am Seion. Ar yr helyg o'i mewn y crogasom ein telynau*.(5). A chymaint oedd pwysau'r holl delynau nes gwyrai'r canghennau tua'r llawr - fel petaent yn wylo. Dyna darddiad y ddelwedd o'r 'helygen wylofus' - yn wylo mewn cydymdeimlad â'r Iddewon yn eu caethiwed.

Stori dda, ond, gwaetha'r modd, ddim yn hollol iawn. Oherwydd nid yr helygen fyddai ym Mabilon ond y boplysen! Gwnaethpwyd y camgymeriad yn y cyfieithiad gwreiddiol i'r iaith Roeg mae'n debyg (6). Ond roedd y syniad mai'r helygen oedd ym Mabilon wedi gwreiddio cymaint fel pan ganfuwyd helygen wylofus go iawn - efo'i changhennau yn plygu'n naturiol tua'r llawr, yn Tsieina, ddiwedd y 17egG (daethpwyd â hi i'r wlad yma fel planhigyn gardd yn 1692), fe'i galwyd yn *Salix babylonica* (er na fu cysylltiad Babilonaidd, botanegol o leiaf, erioed!)

Mae'r cysylltiad rhwng yr helygen a galar neu

Peter Wakely/English Nature

Helygen y gors
Salix caprea

Batting for the willow

As a source of Aspirin, most of us have reason to be grateful to the willow. Its uses, however, extend far beyond pain relief alone. Willows have been used extensively in the past to produce a variety of items that were once a vital part of the rural economy, such as baskets, hurdles, bee hives, lobster pots and tool handles. It is also the prime source of timber for the manufacture of cricket bats. Small willow plantations were once a common sight in many low lying areas, where they would be regularly cut to provide material for craftspeople. Although many of its traditional uses have now dwindled, the economic value of willow may well be on the upturn once again, with the growing interest in its possible use as a biofuel.

dristwch yn dal hefo ni - dyma pam y gwelwch ganghennau wylofus yr helygen yn addurn ar gerrig beddau a chardiau cydymdeimlo hyd heddiw.

Cap Gwiail

Yng Nghymru, rhyw ddwy ganrif yn ôl, roedd yn gyffredin i gysylltu'r helygen â thristwch colli cariad. Cyfeiria Marye Trevellyan (1909) at hynny (7), a'r arfer Cymreig o wisgo cap wedi ei blethu o wiail os oeddech wedi cael eich gwrthod gan eich cariad. Roedd arfer tebyg - o yrru 'ffon wen' neu damaid o bren collen wedi ei risglo i rywun yr oeddech yn ei wrthod neu ei gwrthod. A hynny am fod chwarae ar eiriau rhwng 'collen' a 'colli' mae'n debyg.

Cywion gwyddau

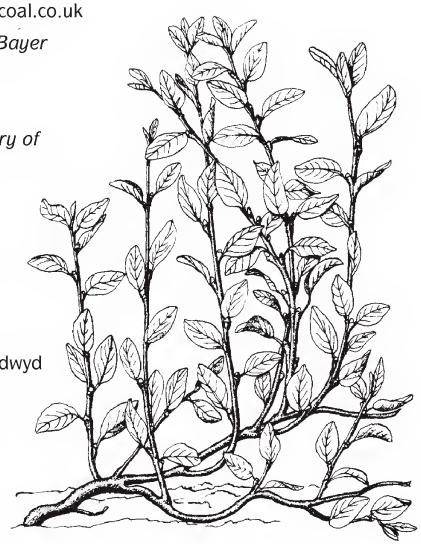
Anlwc o'r mwyaf yw dod â blodau'r helyg, y 'cywion gwyddau' i'r tŷ yn y gwanwyn rhag i hynny amharu ar ddeoriad y cywion gwyddau go iawn dan yr ŵydd (8). Ceid y goel hon am flodau eraill y gwanwyn hefyd - megis briallu (fyddai'n amharu ar ddeoriad y cywion ieir), 'cynffonnau ŵyn bach' (fyddai'n amharu ar lwyddiant yr ŵyna, ayyb). Tebyg mai rhyfygu oeddech wrth ddod â'r blodau hyn i'r tŷ drwy gymryd y gwanwyn yn rhy ganiataol.

*Mae **Twm Elias** yn ddarlithydd a threfnydd cyrsiau ym Mhlas Tan y Bwlch, Canolfan Astudio Parc Cenedlaethol Eryri.*

Ffynhonnellau/Cyfeiriadau

1) Preston, C.D., Pearman, D.A., Dines T.D., (2002). *New Atlas of the British and Irish Flora.*
2) Peate, I.C., (1933). *Y Crefftwr yng Nghymru.*
3) *Willow biofuel* (2006), www.scottishcoal.co.uk
4) Zundorf, U., (1999). Research, *The Bayer Scientific Magazine 9.*
5) *Beibl William Morgan* (1588)
6) Vickery, R., (1995). *Oxford Dictionary of Plant Lore.*
7) Trevellyan, M., (1909). *Folk Lore & Folk Stories of Wales.*
8) Baker, M., (1996). *Discovering the Folklore of Plants.*

[Addasiad rhannol o eitemau a ddarlledwyd ar Radio Cymru: 'Natur Wyllt', Rhagfyr 2005 a 'Galwad Cynnar', Ebrill 8fed, 2006]

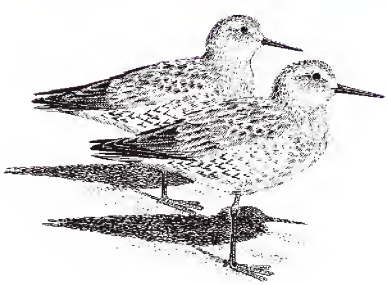


Engineering our future nature: the dilemma of the **Severn barrage**

Peter Wakely/English Nature

The second highest tidal range in the world at the Severn estuary

The proposal to build a barrage across the Severn estuary, to generate power and bring large-scale economic development, elicits very different responses, depending on how you view nature and ecosytems, as MORGAN PARRY explains.



In all my years in the environmental movement, few issues have more sharply defined the challenge of our age than the Severn barrage. Here is a potentially big solution to an urgent problem: how to generate electricity without changing the climate. But the costs, in every sense, could be enormous. I have talked to many of the leading opponents and supporters of the barrage over the last few months, and many who haven't made up their minds, and I've been struck by how people's opinions about the barrage are determined by their attitudes to nature, and the degree to which they feel part of it, or dominant to it.

There is an alliance of support for the barrage from three different kinds of people and organisations: those looking for reliable domestic electricity generation which reduces our dependence on foreign oil supplies, the economic development lobby who see the potential for infrastructure improvements and investment opportunities, and those who simply see it as an engineering challenge to overcome. This alliance of interests persuaded the Welsh Assembly Government to recommend a feasibility study to the U.K. Government's recent Energy Review. WAG Energy Minister Andrew Davies sees the barrage as an “exceptional opportunity”, an answer to climate change which addresses the needs of a strong and internationally competitive Welsh economy.

WWF Canon

China's Three Gorges Dam

With a road link on top of it, the Severn barrage is only partly about energy generation of course. It is also about urbanising, industrialising and commercialising the land around the estuary. Developers argue that economic benefits will accrue from new roads and airports, marinas, housing developments and business parks, stimulating job-creation, inward investment and increased land and property values. These developments will increase dramatically the ecological footprint of south east Wales, and add significantly to our CO_2 emissions, since it is unlikely that it can be achieved in a carbon-neutral way. We can't therefore claim that the barrage is about mitigating climate change. If it is about economic development, if it's for creating an urban metropolis around the Severn estuary, then let's put the plans on the table and have a public debate about it.

The Government recognises the risks of the barrage though. Rhodri Morgan was candid enough to admit, in a local government conference on April 7th this year, that the barrage would be "Wales' own Three Gorges Dam". By this he meant a bold national initiative to overcome an energy problem, resulting in massive but (for him) acceptable environmental modification. We have got used to engineering our terrestrial environment: drainage, agriculture and urbanisation have modified landscapes and wildlife habitats for centuries, resulting in many improvements in human welfare but also many problems. Estuaries have been modified and bays like Cardiff have been enclosed, but the Severn barrage would be a marine project of a completely different scale. The role of the engineers is crucial: they are intrigued by technological solutions and believe that if something can be built, it should. To them, the planet is ours to do what we chose with and natural systems can and must adapt to human modifications.

Following on from the civil engineers, who design the structures and pour the concrete, are the eco-technologists, who love creating new habitats and monitoring the subsequent changes. Those in favour of the barrage have argued that because the Severn Estuary is such a high energy environment, with the second highest tidal range in the world and turbid waters, its wildlife would benefit from some modification. Its true that few species can survive in the most turbulent part of the estuary, but it is the dynamic nature of the system that creates the conditions elsewhere for the unique communities of flora and fauna which are protected by international designations. The eco-technologists are not impressed by site designations though: ecosystems are naturally mobile, and will move even more as climate change impacts on them. Nature will look after itself.

But the engineering approach worries many people, and the comparison with the Three Gorges Dam is particularly ominous. In China this project resulted in the resettlement of almost two million people, increased siltation and risk of flooding, and threatened with extinction a number of species unique to this area. The Countryside Council and the Environment Agency believe the Severn barrage would cause "irreversible impacts to features of international importance" such as intertidal mudflats and sandflats, saltmarshes, waders and wildfowl such as dunlin, redshank, shelduck and migratory fish including salmon, sea trout, shad, eels and lamprey. Furthermore, the agencies argue that the development "would not be possible within the current legal framework provided by the E.U. Habitats and Birds Directives" and "compensatory habitat (could not) be provided to replace those that would be lost". (For more information about the ecological importance of the estuary see the CCW/EA submission to the UK

Government's energy review, or Iwan Ball's article in the Summer edition of Agenda magazine).

But the barrage is also opposed by scientists who are worried that the £15 billion-plus cost will divert investment from newer, more elegant tidal stream and wave technologies, many of which are being developed by institutions in Wales and which have applicability across the world. It will make even less likely the required step change in the efficiency of use and distribution of energy. Energy efficiency can contribute the same reduction in climate changing emissions as the barrage, without any of the side effects. Other scientists believe that placing a permanent, monolithic construction in a mobile, high-energy environment is asking for trouble, and believe that there will be a downstream increase in vulnerability to tidal and storm surge flooding and consequent erosion caused by reflected tidal waves at the barrage face. In other words, the barrage may stay still but the estuary will move around it causing unforeseen impacts and changes.

The engineered future represented by the barrage has been mapped out by the Millennium Ecosystem Assessment (MEA), along with a number of other possible scenarios. Most pieces of academic research make an incremental contribution to the sum of human knowledge, by building on what we already know. But just occasionally a study will combine groundbreaking new data collection with unique analysis to make a quantum leap in our understanding: the MEA published in March last year was just such a document.

It involved 1,360 experts from 95 countries, as authors of the reports, researchers or peer reviewers. Guided by a Board that included representatives of five international conventions, five U.N. agencies, international scientific organisations, governments, and leaders from the private sector, NGOs and indigenous groups, the work took four years to complete. It establishes clearly that the human species, while buffered against environmental changes by culture and technology, is fundamentally dependent on the flow of ecosystem services, the value of which far exceeds the total global GDP. Of the ecosystem services examined by the MEA, 15 out of 24 are being degraded or used unsustainably, including fresh water, capture fisheries, air and water purification, and the regulation of climate, natural hazards, and pests. Many have been degraded as a consequence of actions taken to increase the supply of other services, such as energy in the case of the barrage. These trade-offs often shift the costs of degradation from one group of people to another, or defer costs to future generations. In effect, the benefits reaped from our engineering of the planet have been achieved by running down natural capital assets.

One scenario depicts a globally connected world relying strongly on technology and highly managed, often engineered ecosystems to deliver human benefits. The overall efficiency of our economy increases, but it is shadowed by the risks inherent in large-scale human-made solutions and rigid control of ecosystems. Technological innovation doesn't solve every problem, and the technology sometimes creates new problems and vulnerabilities. In some cases,

Pat Doody/English Nature

Severn estuary SSSI

Morgan Parry

La Rance barrage, France

societies seem to be barely ahead of the next threat to ecosystem services. In such cases new problems often seem to emerge from the last solution, and the costs of managing the environment are continually rising. Environmental breakdowns that affect large numbers of people become more common. Sometimes new problems seem to emerge faster than solutions.

By seeking to work with nature, rather than to engineer it, many environmentalists are seeking small-scale solutions and applying the precautionary principle. If problems arise, the development should be reversible without significant lasting impact. Instead of seeking to improve the natural world, the philosophy should be to leave it alone wherever possible: use its resources but leave a small footprint. There is also a spiritual dimension here: we lose something very close to our souls every time we eradicate natural forces from our lives, and engineered habitats rarely if ever inspire the same emotions. The Severn barrage, for all its power and its glory, would be a poor substitute for the force of the tides, the Severn bore, and the natural cycles of the day and the seasons. There is wonder in technology and human ingenuity, but the most wonderful technology is one that leaves nature intact and thriving, while deriving benefits for human society. Invisible, replaceable, upgradeable, removable, sustainable and modular. Elegant not brutal, clever but not macho, evolving, not monolithic.

The decision on whether or not to build the Severn barrage, when it comes, will be a critical one for our future relationship with nature.

***Morgan Parry** is Director of WWF Cymru.*

Argae'r Hafren yn pwyso'n rhy drwm yn y glorian

Her i beirianwyr ac eco-dechnolegwyr? Ateb cynaliadwy i gynhyrchwyr trydan? Mêl ar fysedd datblygwyr economaidd? Mae'r argae arfaethedig dros yr afon Hafren yn cynrychioli'r rhain i gyd - a mwy. Mae hefyd yn cynrychioli'r tensiwn sy'n nodweddu'n hoes. I ba raddau gallwn ni dderbyn dirywiad mewn ecosystemau ar sail y ddadl bod hyn yn helpu lleddfu problemau amgylcheddol eraill? Mae gwaith ymchwil diweddar yn dangos bod yr ymdrechion i gynyddu rhai mathau o wasanaethau ecosystem, fel ynni, yn peri dirywiad mewn gwasanaethau ecosystem eraill ac yn aml yn gwthio'r gost amgylcheddol ar ysgwyddau grwpiau neu genedlaethau gwahanol o bobl. Yn ôl rhai, byddai'r argae yn siŵr o ddifrodi bywyd gwyllt yr aber. Byddai hefyd yn cynyddu ôl-troed ecolegol de-ddwyrain Cymru ac yn llyncu arian a allai gael ei fuddsoddi mewn technoleg fwy newydd a chydnaws. O adeiladu'r argae byddai llai o gymhelliad hefyd i wella effeithlonedd o ran defnydd a dosbarthiad ynni ac ofnir y bydd presenoldeb argae anferth, llonydd mewn aber deinamig yn peri effeithiau dinistriol na ellir mo'u rhagweld, fel llifogydd ac erydiad, mewn ardaloedd eraill.

Mae'r ddadl yn parhau. Ond bydd y penderfyniad ynglŷn ag adeiladu argae ar draws aber yr afon Hafren yn un allweddol o ran diffinio ein perthynas ni â byd natur.

All photographs: Jean Green

Putting **Denbighshire** on the botanical map

Lithospernum purpurocaerulea Blue gromwell

Botruchium
Moonwort

Denbighshire is full of botanical treasures, yet it has never had its own County Flora. Now at last Vice County 50 has a splendid botanical checklist. Its author, JEAN GREEN, describes how, noting that one ambitious flora never saw the light of day, she concentrated on something achievable: a list of the flowering plants and ferns of Denbighshire.

"It is a somewhat remarkable fact that no detailed account of the flora of Denbighshire has ever been published. At first sight this may appear rather singular, but one has to recollect the extensive area and the wildness and inaccessibility of many portions of the county, and the paucity of local observers."

So wrote A.A. Dallman (1883-1963) in 1911. He was planning a Flora of Flint and Denbigh, to include problems of pollination, floral biology, plant galls and their parasites, sections on meteorology and geology. He even planned a hundred pages of biography and bibliography! Dallman sadly, but not unsurprisingly, never completed his Flora, some elements of which are in Liverpool Museum.

Dallman's extensive records were collected on foot and by bicycle. He would stay for several days at a centre, such as Eglwysfach, Llangollen or Rhyd y Foel, and botanise locally. He was surprised to find country people who spoke only Welsh, and who lit their houses with rush lights (*cannwyll frwyn*).

Dallman intended to omit "commoner plants and book records", so his Flora would have been of "interesting" plants, based on localities (ie near Llangollen). His locations are now difficult to find. For example:

Lathraea squamaria toothwort

"*Thalictrum flavum* (common meadow-rue), several plants on hedgebanks of fourth field by the path between Court Farm and the Mill, Llandegla". Hedges can disappear, banks be straightened by road widening, new buildings and new names appear, and Welsh names are often misspelled.

Purple gromwell *Lithospermum purpurocaeruleum* was first described by John Ray in 1662, "on a bushy hill to the north west of Denbigh". It was noted again by Dallman "in quantity, near Denbigh, in one station only, which I do not specify", so he was even then protecting the plant from collectors. It was re-found by Vera Gordon in 1939, but by now there was a large quarry in the hill. She found only one specimen. This large plant is still flourishing, but it is fenced off on the edge of the quarry among large stones. Access to it requires permission. It is possible that there may be other plants to be found in nearby woods, but recent searches have been unsuccessful.

Hunting the yellow star

Changes in the countryside make old records difficult to trace. Finding yellow star-of-Bethlehem *Gagea lutea* was a challenge. The plant has a scattered distribution in England and Scotland, but the first record for a Welsh site was from a roadside hazel wood in 1979.

The map reference seemed to fall on a meadow trampled by cattle, and several visits failed to find it. I decided to search for it four weeks before the April date on which it was recorded, and visited three times before I found it, growing with emerging ramsons *Allium ursinum*. These leaves would cover and hide the plant later on. Having found one site for the *Gagea*, I searched the whole wood, and found two more patches, each with about fifty plants. In a patch of *Gagea*, only about half the plants were flowering, and the flowers were short-lived, and soon overtopped by other leaves. All the sites I found were associated with toothwort *Lathraea squamaria*, which indicates a possible site.

Finding plants from map references can be difficult in woods, cliffs, long straight roads and wetland. Compass bearings from old trees or buildings are useful, but these can fall down after 50 years. Fence posts as markers are not reliable; grants have resulted in post-and-wire fences appearing on many road sides, limiting access to woods and rough ground. There may be deliberate errors with map references to protect a plant. Some records in the 1967 Atlas are obvious errors, for example purple saxifrage *Saxifraga oppositifolia* in SJ22, where there is no suitable habitat.

On the summit of Moel Sych in the Berwyns, three botanical Vice Counties meet; Merionethshire, Montgomeryshire and Denbighshire. To the west of the summit the rounded grassy slopes are featureless, and require a Global Positioning System (GPS) to locate and record rare plants. Cloudberry *Rubus chamaemorus*, stiff sedge *Carex bigelowii*, and a possible hybrid sedge all grow in this area, and only a GPS can define accurately in which county the plant is growing.

Plant recording changed, with the collection of records for the 1962 *Atlas of the British Flora* (Perring & Walters). This was the first time common plants had been listed, and many dull and distant 10km squares were visited for their records. Completed record cards for Denbighshire VC50 were

sent to the National Museum of Wales, to be vetted by A.E. Wade. There was at that time no botanical recorder for Denbighshire. Field clubs and students helped with work and many a life interest in botany started with square recording. At this time non-native plants were not recorded. Garden escapees had to be "100 yards from a house" to be accepted, and anything planted was omitted.

The *Pinopsida* (conifers, gymnosperms) were under-recorded in the Atlas. Only *Larix decidua* (European larch), *Pinus sylvestris* (Scots pine), *Juniperus communis* (juniper) and *Taxus baccata* (yew) were represented, leaving out the many conifers in commercial forests, churchyards, parks and gardens. With the *New Atlas of the British and Irish Flora* (Preston, Pearman, Dines 2002), conifers are now on the map. With the checklist, honesty has to prevail and many entries of 'not recorded' and 'inadequate records' reflect the present poor state of recording.

I hope this is a stimulus to recording, and helps rare plants to gain the consideration they deserve. For example, oysterplant *Mertensia maritima* was last seen in Wales on Pensarn beach in 1982, its most southern site in Britain. It disappeared and was not seen again after a severe north-westerly gale, combined with an exceptionally high tide, caused huge waves to crash over the shingle, closing the coast railway line and flooding low lying houses in Towyn. A seawall was later built to prevent a similar flood. During building, all the heavy machinery and building materials were stored on the shingle, with resulting damage to plants. *Mertensia* is a plant of northern coasts and, although the seaborne seeds are viable for a long time, they will germinate only if conditions are right. We must await the next cold winter when there is ice on the shingle.

Publishing the Flora

To decide to write a flora is a daunting prospect. A full-blown flora, listing localities with species maps and habitat descriptions, takes years to write and requires more expertise than I had. A checklist seemed possible, as I had an up-to-date card index, started by John Brummitt in 1964. A checklist would define the state of records in 2006 and would act as a baseline for a future flora.

Neottia
Birds nest orchid

Having decided on a checklist, it had to be compact, inexpensive and accessible. For whom is a checklist written? It is not an identification key. The user will have identified the plant using a plant guide, and will then look up its status in VC50. This book is for local and visiting botanists. There is a section on places to visit and the plants you may find, for the benefit of walkers and naturalists. It is also for the county ecologist and local biodiversity planner, who decide which uncommon plants need protection.

Denbighshire VC50 includes parts of four modern counties, Conwy, Denbighshire, Wrexham and a tiny portion of Flintshire. Map 1 in the book defines the counties, but a map reference may be required to place the plant in its political county.

The section on places to visit is for walkers and naturalists to have a day out and to find the plants mentioned in the section. There are 39 10km

Meconopsis cambrica
Welsh poppy

Trysorau VC50

Natur eang a gwyllt Sir Ddinbych, ynghyd â phrinder botanegwyr lleol, sydd wedi llesteirio'r gwaith o baratoi blodeulyfr sirol yn y gorffennol. Bellach mae gennym restr rhywogaethau sy'n nodi statws cyfredol planhigion yr ardal a hefyd yn rhannu gwybodaeth ynglŷn â'u cynefin ac yn awgrymu lleoedd diddorol i naturiaethwyr ymweld â nhw. Mae VC50, sef yr uned ddaearyddol ar gyfer cofnodi botanegol yn yr ardal hon, yn cynnwys rhannau o bedair sir gyfoes - Conwy, Dinbych, Fflint a Wrecsam.

Seiliwyd y gwaith ar gasgliad o gofnodion safonol a gychwynnwyd yn 1964. Mae'r tirlun wedi newid yn aruthrol dros y blynyddoedd, yn enwedig ers dyddiau botanegwyr fel John Ray (1662) ac A.A. Dallman (1883-1963). Roedd angen cryn dipyn o amynedd a chymorth technegol GPS i leoli rhai o'r planhigion anghyffredin fel llwyn mwyar y Berwyn, y maenhad gwyrddlas a'r seren-Fethlehem felen. Gobeithir y bydd y gwaith presennol yn sbarduno rhywun arall i lunio llysieulyfr cyflawn yn y dyfodol.

squares or part-squares in the vice-county; plants recorded from 1-3 of these are defined as rare, and 4-15 as scarce. The date of the 'latest record' entry is an indication only, as common plants are not recorded each time they are seen. It is a section of more use for rare and scarce plants.

Some difficult genera are listed. These include *Rosa*, *Taraxacum*, *Hieracium*, *Euphrasia* and *Rubus*. These may only have Latin names, and are included only if they have been checked by an expert. Otherwise all the plants have Latin, Welsh and English names - the Welsh dictionary *Planhigion Blodeuol, Conwydd a Rhedyn* was a great help in typing plant names in three languages. The names are on a disk, linked to print all three names when one is typed. It has saved much time in typing and proof reading.

Stachys alpina Limestone woundwort

'Habitat' is a brief description of the habitat in VC50. 'Status' may be in two parts i.e. rock stonecrop *Sedum forsterianum* which is 'rare' in its 'native' mountain habitat, but 'scarce' when it is 'established' on garden walls. Similarly Welsh poppy *Mecomopsis cambrica* can be a rare native, or is a common weed in gardens in the west of the county.

'Frequency' is perhaps what a visitor most needs to know. A plant which is rare or scarce is worth recording. Send the plant name, date of finding and position by map reference or GPS reading to the BSBI Recorder or any BSBI member, or c/o North Wales Wildlife Trust. In this way new sites may be discovered and old records updated. Don't forget to send your name, and a photograph of the plant if you have one.

Denbighshire VC50 is now on the botanical map with a plant checklist. This will serve as a useful baseline. It awaits a resolute botanist to write a flora for this varied and interesting county in Wales.

***Jean A. Green** is BSBI County Recorder for VC 50.*

Copies of *The Flowering Plants and Ferns of Denbighshire* are available price £7.50 from Summerfield Books, Main St., Brough, Kirkby Stephen, CA17 4AX. Email: bsbipubs@beeb.net

A view from the **touchline**

Ask any of the small band of professional nature conservationists about the state of our environment and they will provide a blizzard of detail, but will they be able to discern the wood through the trees? Look from a hill top (or these days usually through a car window) and Wales presents a picture of stunning beauty, but does this hide the reality of a degraded environment? Having stepped back from the conservation coalface after a quarter of a century working for RSPB in Wales, ***TONY PRATER'S*** *perspective on the fortunes of wildlife here is both broad and deep.*

Steven Round

Yellowhammer

One thing we are all good at, whether we are conservationists, farmers or land managers, is looking back at a past time which was good and seeing the current position in stark contrast. It binds us together, but it also tends to drive us to adopt stances that can become difficult to reconcile. I was invited to look back at conservation in Wales and changes over a 25-year period; what follows is inevitably driven by personal impressions.

Changes in the status of wildlife

The 25 years have seen many very dramatic changes. Losses always seem to be so prominent, but are they? Well, my personal records show that there has been a huge and continuing loss of specialist wildlife, whether it is the near disappearance of yellow rattle hay fields, associated greater butterfly orchids, wild daffodils, lapwing, curlew, redshank, corn buntings, most of the fritillary butterflies or a host of once widespread but special species. There have been gains, with some

Michael Hammett

Small pearl-bordered fritillary

specialists finding niches, such as the colonisation of Wales by breeding ospreys, little ringed plovers, Dartford warblers or Cetti's warblers. Red kites have spread dramatically and peregrines have recovered from the poisoning of the 1960s. Many dragonflies have increased their range, as have a number of butterflies such as marbled white or speckled wood. Conservationists are always drawn towards the rare and special, for they have value in their own right but also reflect the continuation of a diversity of habitat and niches within it. However, in conserving the special we also can help maintain the common.

My major concern, though, is that I have seen a substantial loss of many of the more common species too - yellowhammers, starlings, wood warblers or small heath and small copper butterflies. In a much more intensively managed landscape only the resilient have survived the ever earlier cutting regimes, increased grazing levels with associated chemical inputs, the roadside verge and hedge onslaught and the cascade of aerial pollutants, many of which are also fertilizers.

With a small number of exceptions, I have to say that our wildlife resource in Wales that I see is now severely degraded.

Optimism or pessimism?

Perhaps in answering that question, we have to look at the big processes in Wales. We have lots of potentially positive initiatives. Firstly, we have the Sustainable Development Scheme (SDS), which should drive forward the environmental agenda. Well, it took six years from its inception to produce an Environment Strategy. It's here now, but will wildlife see a real recovery? Only time will tell, but we have competing and destroying aims from a huge growth in our GDP, which is more than likely to put further pressure on our environment.

Let's take a more detailed measure: Farming Connect was intended to help farmers with environmental and business advice across the board. Some four years after it was set up, and after our perennial problem of just talking, it developed the Environmental Opportunity Programme. I have yet to see it deliver a single positive outcome for wildlife; maybe it has but, cloaked in secrecy, it has been more than a massive disappointment.

A new flagship policy from Wales Assembly Government (WAG) was the Wales Spatial Plan; well, again it was driven by the economic agenda, and the environment has been a bolt-on addition after the first key development decisions were 'agreed'. It does appear that wildlife has, so far, all too frequently taken the back seat in politics and policy. It would be great to see WAG really pushing the environment for a change.

Some real positives have emerged, not least because Wales is starting to take control of its own destiny in some areas - after all, the environment of Wales is one of its greatest assets. By identifying species of

Mandy Marsh

particular value in and for Wales (the so-called section 74 list under the Countryside and Rights of Way Act 2000), we have started to look at managing for our wildlife. However, these are but a tiny fraction of species and habitats which need help. Success does not come because of a list but only from actions.

Do we work together well?

On the face of it, much has improved over the last 25 years. The NGO network is much larger and stronger, with many new players such as Butterfly Conservation and Plantlife appearing on the scene. Wales Environment Link is able to help bring a more informed and co-ordinated view to the table. But even though its combined membership numbers well over 180,000, staff numbers are very small, and they struggle to fully participate in the way they would wish.

On the statutory side, a weakened Countryside Council of Wales emerged from energy-sapping reorganisations of the Nature Conservancy and the Nature Conservancy Council, and has become increasingly a creature of WAG, offering a positive environmental spin on behalf of its political masters, rather than an independent voice on behalf of wildlife. It retained a core of dedicated staff, but many of those in the front line do echo my observations that they are hamstrung by bureaucracy, and suffer criticism should they take a strong line for wildlife and wildlife sites. With the recent loss of many very experienced staff (and rumours of more losses to come), it seems increasingly unlikely that CCW will be able to lead for the environment. Perhaps in the more enlightened future, when the SDS really takes on board the environment, CCW will be less criticised, better resourced and able to take much more action for wildlife. Of course, other statutory organisations have become much more involved over the last few years with aspects of the environment for wildlife, notably the Environment Agency Wales and Forestry Commission, Wales, and this has been a welcome positive move.

The small body of conservation staff that exists has met in various forums and, mostly, bilateral meetings. Needless to say, we have not always agreed on the way forward but, generally, it has been positive. However, in parallel with necessary bilateral meetings, there have

Michael Hammett

Spotted redshank

been very few big review discussions to look at emerging key issues. I have often felt that heavy cloak of secrecy (could just be lack of time?) preventing a meaningful dialogue - let's not forget that the voluntary sector has substantial expertise! Although we have a panel for reviewing the Environment Strategy, perhaps there should be a nature conservation forum (not under the auspices of WAG), whereby we can examine ways forward across sectors, not just within them? Could the Wales Biodiversity Partnership, which has been rather low-key, in its new, revised format have a major function here - we can't afford a plethora of bodies and meetings!!

The scarce pot

Of course, everything is starved of resources - this is true for the social as well as the environmental sector. But the paltry sum spent on wildlife each year perhaps emphasises that it is always on the back burner. CCW was unable to get sufficient resources into the potential flagship agri-environment scheme, Tir Gofal; will that be better financed and able to deliver more now it disappears into WAG? Well, perhaps I should let you the reader consider that question! Then, as we had a real opportunity to expand this scheme, in comes Tir Cynnal; as an entry scheme with absolutely minimal wildlife value, it is hoped that farmers will be encouraged to progress 'up the ladder' to Tir Gofal. Early signs are of a large uptake and very substantial sums going on it. Good perhaps, but will the large uptake mean that WAG can put a positive spin on the large number of farmers in agri-environmental schemes and then be more than reluctant to increase resources to the more expensive and demanding higher tier schemes? I hope I can read in future editions of Natur Cymru that it is really delivering for wildlife.

Special sites and the wider environment

All too often, there has been an artificial separation between special sites and the wider environment, with proponents arguing for either. Clearly what has happened (not just in Wales, I hasten to add) is that we have been losing both. But this isn't an either/or. We have to manage the land for specialist species, both in special sites (Natura 2000 sites, SSSIs, nature reserves etc) and through wider countryside measures (e.g. agri-environment, the water environment and land-use planning). There is an increasing danger that the very limited 'features' of those sites are all that it is considered appropriate to manage for. It is the fabric of our countryside that is important, and those with an opportunity to guide or undertake management will need to do more across the board.

Conclusion

So, what are my lasting impressions? Well, Wales has maintained the fabric of its countryside. Sitting on the many hills, if one ignores the overgrazed vegetation, one sees a network of hedges and woods with still essentially small fields against a backdrop of more semi-natural upland blocks. We have a great coastline too; and who can be other than impressed when visiting it? While it looks superficially great, however, it is only too easy to see where the small patch was drained, the hay fields have

Intensively managed farmland and abundant nature in the uplands

Joyce Fleur

gone to silage, the hedges are actually grazed out at their bases, fields if flat would make great bowling greens and the woods have been 'invaded' by conifers. But it certainly looks good to the untutored eye.

One knows much can be improved if the political will is there to do it. Will it be there? Possibly, but we have to press and persuade the politicians to do the right thing. Not easy, but possible. Although I have moved away from Wales to be nearer to my family, I will come back and will hope to see the potential realised. But will it just be in hope? Over to you!

***Tony Prater** has worked for the RSPB and the BTO for over 36 years, latterly in Wales as RSPB's Conservation Manager. He still takes a keen interest in wildlife, management and policies influencing our environment.*

Bwrw golwg nôl wrth gau'r drws...

Wrth edrych nôl ar lanw a thrai amgylcheddol dros gyfnod ei yrfa, mae Tony Prater yn cydnabod bod ambell rywogaeth wedi llwyddo ennill tir. Ond er hyn, y dirwyiad parhaus a sylweddol yn hanes y rhan fwyaf o'n bywyd gwyllt cyffredin a phrin sy'n ei daro'n bennaf. Beth sy'n cyfrif am hyn? Bu grymoedd mawr ar waith yng Nghymru - rhai economaidd sydd wedi bod yn flaenllaw, gyda pholisiau a mentrau amgylcheddol yn llusgo ar eu hôl ac yn cyflawni rhy ychydig.

Rhaid croesawu'r cydweithrediad gwell ymhlith cyrff statudol a mudiadau gwirfoddol, ond prin fu'r cyfleoedd i drafod y ffordd ymlaen ar draws sectorau. Mae prinder adnoddau yn hen stori, sy'n siwr o barhau. Ac a fydd cynlluniau amaethu amgylcheddol yn llwyddo mewn gwirionedd, gyda gofynion Tir Cynnal mor dila? Ai ofer, hefyd, yw gweithredu i warchod ychydig o nodweddion arbennig ar safleoedd penodol, pan ddylem fod yn bachu cyfleoedd i reoli cefn gwlad yn ei grynswth?

Ar yr wyneb, mae Cymru yn dal i fod yn wlad hardd a 'thraddodiadol' yr olwg. Ond nid oes angen crafu rhyw lawer i ganfod yw'r Afallon hon yn holliach.

Moth Recording
at home and abroad (well, England!)

Can we expect our elected representatives, in the hurly-burly of political life, to take an interest in the moths that take to the air at dusk? A Blair's Wainscot perhaps, or a Brown China-mark? STEVE MOON reports on a moth and bat event at Westminster and looks forward to similar events near home.

Ian Kimber

Agrotis exclamationis Heart & dart

Ian Kimber

Plutella xylostella
Diamond-back moth

I started to record moths at Kenfig Pool & Dunes Local Nature Reserve (subsequently to become a National Nature Reserve and Special Area for Conservation) in 1980, having discovered that no one else had done a systematic study of these creatures there. My interest in moths (thanks to my early mentor, Ian Tew, when he was at Swansea University) grew quickly, and I soon found myself halting conversations at home with my wife Madeleine, to collect a moth that had been attracted to the window. I also soon found that you cannot use the excuse "Well, you'll be around for ever, but that moth is going to fly" very many times (if at all!). I have, however, now organised myself, and have run a Heath actinic trap in my garden in Porthcawl for ten years, amassing a total of 383 species (many, of course, of micro-Lepidoptera that I pot up and have verified with the experts at the South East Wales Biodiversity Records Centre (SEWBReC). I am fortunate in living next to Lock's Common, a coastal limestone pavement and diverse grassland with scrub patches which is a Local Nature Reserve. This is why I still find the occasional new species to enthuse about, and the growing data set is important in tracking the fate of our common species.

Some of my interest has rubbed off on Madeleine, so when she became Bridgend County Borough's Member of Parliament in May 2005, she was soon recognised for her environmental credentials, asking questions on biodiversity that no-one had dared ask before, and being asked to sit on the DEFRA Select Committee.

Madeleine has developed links with a number of environmental organisations, so it was not surprising that she has also tried to give them access to the Parliamentary Estate - in more ways than one!

For example, on 10th July 2006, in response to their report on the decline of moths in Britain, and Madeleine's subsequent Early Day Motion about this topic, Butterfly Conservation met with Madeleine and set two actinic traps in the grounds of the House of Commons. That evening the Bat Conservation Trust held a bat recording session

Steve Moon

Cryphia algae Tree-lichen beauty

there, and it was instructive to hear the porters and others recount their tales of bats flying around the impressive architecture. But the weather that evening was not conducive to many bats being located, and it was with a certain trepidation that the moth recorders ('moth-ers') returned the next morning to see what they had caught. They found thirteen species in the traps - including one that made the author of this article very jealous. This was the tree-lichen beauty, a migrant species "which has recently begun to appear on the south coast, with a number of records since 1991, although prior to that, the previous record was in the 19th

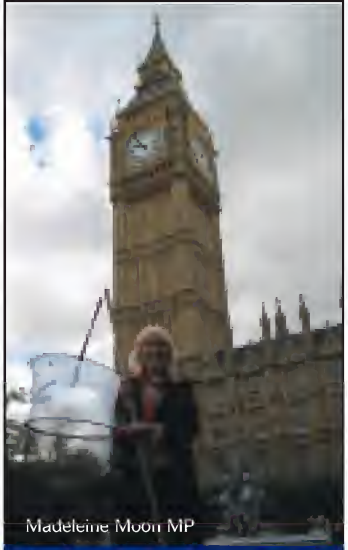
Ian Kimber

Cryphia domestica Marbled beauty

century. The most frequent occurrences are in August, with occasional multiples of two and three. The species occurs in southern Europe, where the larvae feed on lichens growing on trees."[1]

I was one of the founders of the Glamorgan Moth Recording Group (GMRG) in 1995, a response to the growing number of naturalists (particularly those who had come up the birding route) becoming interested in recording moths in south Wales. As a group we have a policy of recording by non-lethal means, and of promoting the recording and conservation of these insects. Within five years GMRG had fifty members and had published a provisional atlas of the macro-moths of Glamorgan. Much of this is due to the hard work of committee members such as Michael Powell, Barry Stewart and David R.W. Gilmore. Five years on from then, and GMRG currently has a membership of over 80, and is working towards a comprehensive publication of Glamorgan Lepidoptera that the Group hopes to publish in 2007. In order to ensure that atlas work is as comprehensive as possible, the Group self-imposed the condition that each of the 10km squares in the vice-county would have records for the 100 most commonly recorded species. *Moths of Glamorgan* will provide the first complete Glamorgan Lepidoptera list to be published for over 50 years, and will provide an up-to-date account of the county's moth species.

The GMRG runs a series of field meetings during the summer, which are generally well attended, and aims to produce a minimum of nine newsletters during the course of each year, each with a gallery of insect photos and a list of notable records for the past



Steve Moon

Gwyfynod mewn gardd gyffredin a Chyffredin

Bu **Steve Moon** wrthi ers degawd bellach yn dal gwyfynod yn ei ardd gefn ym Mhorthcawl. Cofnododd 383 o rywogaethau yn ystod y cyfnod hwn. Mae ei ddiddordeb a'i frwdfrydedd wedi bod yn heintus; mae ei wraig, sy'n aelod seneddol dros Ben-y-bont ar Ogwr wedi bod pledio achos glöynnod a gwyfynod yn sgîl ei gwaith gwleidyddol a llwyddodd drefnu sesiwn dal gwyfynod eleni yn ngardd Ty'r Cyffredin er mwyn cynyddu ymwybyddiaeth aelodau seneddol. Mae diddordeb Steve hefyd wedi arwain at sefydlu Grŵp Cofnodi Gwyfynod Morgannwg, sydd wrthi'n brysur yn cofnodi a rhannu data gydag eraill ac sydd ar fin cyhoeddi llyfr ynglŷn â gwyfynod y sir - y rhestr gyflawn gyntaf ers 50 mlynedd.

month. GMRG also supports SEWBReC, and has recently agreed a Data Exchange Agreement with the Centre. GMRG is solidly behind the Local Biodiversity Action Plan process and regularly sends records of interest that have been validated to the County Borough Council's biodiversity officers and ecologists. The sharing of data between enthusiasts using Mapmate has also revolutionised the recording of moths in Glamorgan, and you only have to look at the GMRG web page to see the enthusiasm there is, and to find back copies of the newsletter.[2]

Those of us involved in wildlife conservation spend much of our time raising awareness of the intrinsic value of biodiversity, and the benefits that biodiversity provides to us. This involves explaining what biodiversity is, the fact that it is disappearing at an alarming rate and why it is important to us for social, cultural and economic reasons. As one campaign leaflet put it, biodiversity "enriches our lives and provides essential services on which our lives depend. Although there are many, often unmeasured, practical reasons for conserving biodiversity, there is also a very strong ethical case for not destroying other forms of life that share the planet with us".[3]

It is newsworthy events held in the corridors of power (even attracting the Minister, Barry Gardiner, to the morning investigation of the actinic lights) that may help change the attitudes of our elected members. If MPs are up for it, perhaps Assembly Members might be interested to meet some of the nocturnal inhabitants of Cardiff Bay!

***Steve Moon** is Ecologist for Bridgend County Borough Council. A wildlife enthusiast, his specialisms cover birds, butterflies, dragonflies and moths.*

House of Commons rooftop, 10th July 2006 (M.Parsons)
Two actinic traps were used, and attracted the following moths:

Micro-Lepidoptera:
Eudonia mercurella
Acrobasis repandana
Diamond-back moth *Plutella xylostella*
Garden grass-veneer *Chrysoteuchia culmella*
Gold triangle *Hypsopygia costalis*
Meal moth *Pyralis farinalis*

Macro-Lepidoptera:
Heart & dart *Agrotis exclamationis*
Lesser yellow underwing *Noctua comes*
Grey/dark dagger *Acronicta psi/tridens* (not determined to species)
Tree-lichen beauty *Cryphia algae*
Marbled beauty *Cryphia domestica*
Pale mottled willow *Paradrina clavipalpis*
Silver Y *Autographa gamma*

References

1. *http://ukmoths.org.uk/search.php*
2. *http://www.sewbrec.org.uk/GMRG_MSG/index.html*
3. *2010: Halting the Loss of Biodiversity (campaign leaflet)*

Environment Agency

SNAP in the Hafren Forest

Pond creation in the Hafren Forest

In the Spring 2005 edition of Natur Cymru, Mags Cousins reported on the Severn Natural Assets Project (SNAP). Nearly 18 months on, the partners have carried out some fantastic work to improve water quality, increase biodiversity and improve rural tourism in the Upper Severn and Vyrnwy river catchments. ***TAMMY STRETTON*** *takes up the story in the Hafren Forest.*

The Hafren Forest takes its name from the Afon Hafren (River Severn), the source of which is only 800m outside the forest, in a peat bog on the eastern slopes of Pumlumon. The young river quickly gains momentum as it plunges through the forest, then on to Llanidloes, Newtown and Welshpool, before crossing the border into England.

Before the Hafren Forest was planted the area was largely open moorland and agricultural land, with mining for copper and lead taking place from as early as the Bronze Age. In 1937, 12 upland sheep farms, covering 40 square kilometres, were purchased by the Forestry Commission and the land was planted with pine and spruce trees.

This large scale planting of conifers, often right up to the river's edge, sounded the death knell for much of our native wildlife. Not only were the uniform forests unsuitable habitats for most plants and animals, but they also caused increased acidification of the watercourses. The year-round needle-drop in itself didn't help, but it was the extensive network of drains which caused the biggest problem; heavy downpours of acid rain would rush straight into the rivers without being neutralised on the

land first. The increased acidity was too much for most invertebrates, and as they disappeared, so too did the fish; with the fish gone, there was no food for other animals such as otters.

SNAP to the rescue!

In her article in Spring 2005, Mags Cousins explained how SNAP was already making an impact on reducing acidification through liming, and increasing fish stocks by releasing captive-raised, wild-caught salmon. Both of these methods are good short-term measures, but unsustainable in the long-term.

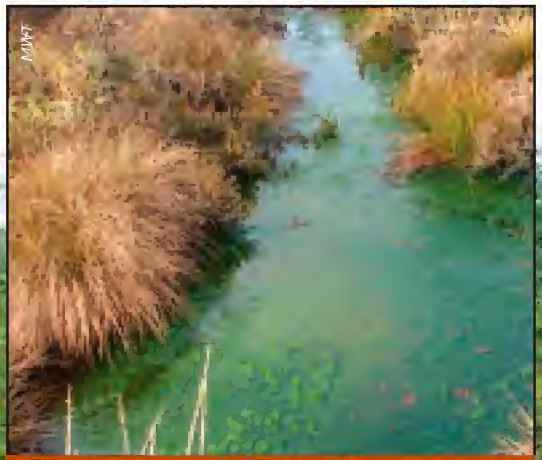
To tackle this problem, Forestry Commission Wales (FC) took the lead on the clearance of conifers in their plantations that were adjacent to watercourses. A rolling programme has been put in place to clear the natural regeneration of these conifers, allowing semi-natural vegetation to grow in their place.

FC has also been working jointly with the Environment Agency (EA) creating and restoring wetland and riparian habitats within the forest. In the Hafren Forest alone, 500 ponds have been dug, and have already been colonised by palmate newts as well as many species of dragonfly and damselfly. In the nearby Dyfnant Forest 1.5 kilometres of drains have been dammed, recreating a wet bog habitat which once existed throughout these upland areas. In all, FC and EA have so far managed 120 hectares of riparian zones.

From bog to forest and back again

On the edge of the Hafren Forest, near the village of Staylittle, is an upland peat bog known as Allt Ddu. It is likely that it has been a bog for a long time as the Welsh name 'Black Hill' may refer to the dark colour of the peat.

Some twenty years ago, Allt Ddu was drained and planted with Sitka spruce but, despite this, remained very wet and boggy. The trees struggled to grow in these conditions; many didn't survive, and others have barely grown a metre high at age twenty! Where the ground was a little drier, heather had the upper hand and despite being sprayed it continued to thrive.


MWT

Sphagnum pool with lots of new growth

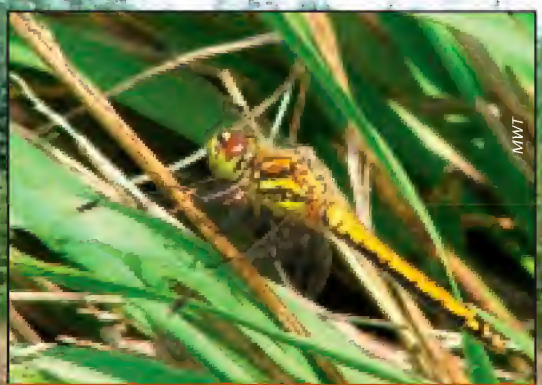
MWT

It is hard to believe that the trees are struggling when you arrive on the edge of this 30 hectare patch of land. When I first went to Allt Ddu I was greeted by a wall of conifers much like any other forestry plantation. But after a short walk through the trees I encountered something quite different. What I saw before me was a much more open area, with scattered small trees; heather was abundant, and the ground underfoot became distinctly soggy. Even though it was still winter I could see the potential of the site, and became quite excited about what we could do there.

Further investigation showed just how interesting the site is; nine species of mosses and lichen have already been identified, along with typical bog plants such as round-leaved sundew, bog asphodel, common cotton-grass and bog rosemary (which is identified as a Species of Conservation Concern because of its scarcity and decline in distribution). A number of invertebrates have also been seen, including the black darter dragonfly, a bog specialist. Although not yet confirmed, there is a good chance that red grouse and short-eared owl are present, and the site has the potential to support black grouse which could colonise from nearby populations.

Bog asphodel

The Montgomeryshire Wildlife Trust (MWT) had actually been keeping an eye on Allt Ddu for a while, particularly as it is only 500m from one of our nature reserves, itself a small patch of modified bog next to



Black darter

the Carno windfarm. We were delighted when the new owners approached the Trust for some advice on how to restore the bog and, through SNAP, we were able to offer some help to carry out the work.

MWT
Sundew

The first priority was to remove a good number of the conifers in order to reduce any further drying out. The landowners began to tackle this on their own and then, in March 2005, MWT organised contractors to continue the work and removed 3.5 hectares of Sitka spruce. A further 2.5 hectares was cleared in February 2006.

Due to the wet nature of the site, and to avoid damaging the existing habitat with heavy machinery, the felling work had to be carried out with chainsaws. All the trees had the branches removed and were then cut into metre lengths. The resulting brash and timber was separated out and stacked into nearby ditches, ensuring that gaps were left between the piles.

Placing the timber in the ditches greatly reduces the flow of water, helping to raise the water level. Gaps were left to allow the growth of plant life such as sphagnum moss, and also to leave space to create peat dams in the future. The separation process was necessary to allow the quantity of timber and brash to be dealt with effectively.

It is still early days, but there is already a noticeable improvement on the site, with an increase in the area of sphagnum moss and locally increased water levels. The next phase of the work is due to start in August, and this will involve creating peat dams at regular intervals along most of the drainage ditches. Amazingly, we have been able to find the contractor who originally dug the ditches twenty years ago and have asked him to come back and create the peat dams for us; he is confident that he won't loose a machine in the bog this time!

Once complete, the peat dams will allow much more water to be retained on site, and this won't only be good news for the bog habitat. A healthy bog can soak up an enormous quantity of water and this will help counteract acidification as well as reducing flood risk lower down. Also, as reported in a previous edition of Natur Cymru, healthy peat bogs are tremendous carbon stores; deep peat could hold 17% of Welsh carbon reserves. Remember that next time you feel tempted to buy a peat-based garden compost!

***Tammy Stretton** is Farm Liaison Officer for the Montgomeryshire Wildlife Trust, providing free wildlife advice and support for farmers in the county. The Snap2 project has been part funded by the European Regional Develpment Fund Objective 2.*

'SNAP' yn helpu troi'r cloc yn ôl

Mae cynllun SNAP wedi bod yn allweddol wrth geisio gwrthdroi effaith fforestydd Hafren a Dyfnant ar amgylchedd canolbarth Cymru. Adroddwyd eisoes am y gwaith o roi calch yn nŵr asidaidd yr afonydd a gollwng eogiaid ifanc i gynyddu niferoedd pysgod. Ond atebion tymor byr yw'r rhain. Bellach mae Comisiwn Coedwigaeth Cymru ac Asiantaeth yr Amgylchedd yn rheoli 120 hectar mewn ffordd gydnaws, drwy glirio coed o ymylon yr afonydd, agor 500 o byllau a chau 1.5 km o ffosydd.

Gyda chymorth SNAP, cliriwyd 6 hectar o gonwydd o gors Allt Ddu, ger fforest Hafren, yn ystod 2005-6. O ganlyniad i osod bonion coed ac argaeau mawn yn y ffosydd, mae'r safle eisoes yn fwy gwlyb ac mae'r migwyn yn cynyddu. Drwy adfer y gors, bydd pobl a bywyd gwyllt ar eu hennill. Bydd y safle'n dal dŵr am gyfnod hirach, gan leihau perygl llifogydd yn is lawr y dyffryn, a bydd y mawn yn datblygu'n storfa gyfoethocach o garbon.

A taste of the landscape

The particular wildlife of an area is a vital aspect of distinctiveness and diversity; so too is the food. If you live within sight and smell of the sea, should you not also be able to taste the seafood? Inspired by a recent book on the local food available on the Llŷn peninsula, ***JAMES ROBERTSON*** *considers how far we have to travel before we are really able freely to taste the delights of the locality.*

London chef Ian Walker is putting north-west Wales on the culinary map with his new book of recipes and researches into local food on Pen Llŷn, *Thirty Miles - A Local Journey in Food*. What began as a short stay in the seaside village of Aberdaron turned into a full-blown challenge to find the best food the locality could offer. Everything had to be sourced from within thirty miles as the crow flies - perhaps 'as the chough flies' better captures the spirit of the place.

In practice the thirty miles took in a chunk of Anglesey and Snowdonia, and gave its author ample scope to meet a varied bunch of farmers and growers. These are the real heroes, whose passion and dedication give the food they produce a history and quality far removed from the anonymous, bland packages of the supermarket.

During the summer I was invited to a barbeque at the home of one of these food heroes. A former Chair of the local rare breeds group, Mary keeps rare breed cattle and sheep, but her passion is for her pigs. I armed myself with a glass of husband John's excellent home brew and went to look at her latest arrivals. Two magnificent Tamworth sows rushed to the fence to greet me. They were surrounded by a squealing welter of frolicsome piglets. The two great ginger-haired animals, which

Paul Clendell/English Nature

were sisters, had just taken to sleeping in the same pig ark with their litters - real togetherness.

There were three other pig keepers at the barbeque. Each brought a few packs of sausages, some pork to roast or some gammon, all of which had the most complete provenances you could ever hope for. As an inveterate meat-eater, I want to know that the animal I am eating has had a good life; indeed I want to respect the life that has been given for my benefit, and I can only do this if I know where that animal has come from. There is nothing respectful about eating the anonymous products of factory farming.

I was able to bring my own organic lamb chops; someone else brought kid, which was a revelation of juiciness with a hint of smoke. And nothing was as succulent as the mackerel caught that day, marinated in garlic and herbs, and popped on the barbeque to add smokiness to the flavour. What a celebration of good food and good company that evening proved to be. Eat your heart out, Ian Walker.

With such a memorable evening under my belt, I could not keep away from the Llŷn Seafood Festival, a chance to meet some more of Ian Walker's food heroes, I thought.

The event, which was held in a marquee beside the Sailing Club at the Pwllheli Marina, proved less festival and more a marketing device for the exhibitors. There was hardly any seafood on sale, and as no food or drink was available in the marquee, it hardly justified the term festival; nor did it establish that fresh local seafood was an important ingredient in the culinary traditions of Pwllheli and the surrounding area. Very little of what was on sale was locally produced, unless you define local as Welsh, which I don't. Several old friends and familiar faces were exhibiting, doing the necessary businesslike thing and promoting their products. I wish them well. However my efforts to find a restaurant in Pwllheli serving fresh local seafood failed, and I ended up eating a miserable tuna sandwich.

There is nothing unusual in this. It is a truism to say that we live in a homogenised, globalised world. Even our landscapes have been re-shaped to fit a world of commodities and mass market. Gone are many of the particularities which make each place unique, whether it is the family butchers and bakers, the fishmongers and cheese makers, the local foods or indeed the wild flowers adapted to local conditions of geology, soils and climate. Indeed it is clear to me that the loss of biodiversity is not really

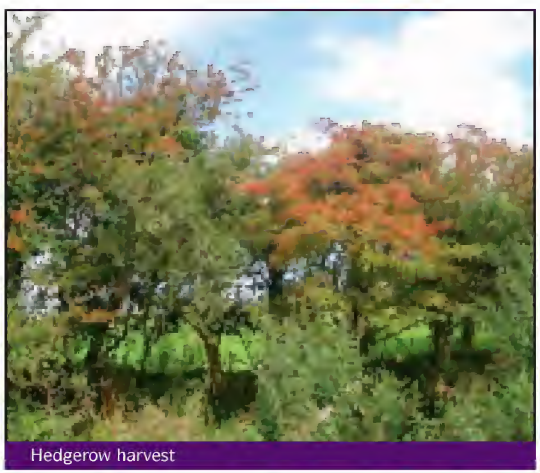
about the national decline of species and habitats, it about the loss of those plants and animals which distinguish and enrich the locality. What lies a few hundred metres beyond the fence, yours and mine, matters. Pen Llŷn would be much less its distinctive self without its heaths and commons.

Patrick Robertson

So I want to know where I am, to taste the landscape I am in. The nearer I am to the source of the food I am eating and the more I know about it, the more confidence I will have in it, and the happier I will be. I know I am not alone; people of all backgrounds whom I have met at the local farmers' market have shared similar thoughts, undermining the popular myth that a concern about the food we eat, the stuff we put in our bodies to keep ourselves alive, is the preserve of a small middle-class minority. Yet we have some way to go before the producers, marketers, regulators and grant-givers wake up to this, and realise that local is best, full stop.

Ian Walker was warned that Llŷn might be wanting in culinary inspiration, but could not believe that an area with "world class grazing land, an ocean stocked with fish and people with a passion for food, could not produce high quality fayre." In his book he has proved that it can, but it isn't easy to find. Stirring up pride in local food is about much more than marketing. There is still a long way to travel on our local journey in food.

***James Robertson** is an organic smallholder, environmental writer and editor.*



Joanna Robertson

Hedgerow harvest

Thirty Miles - A Local Journey In Food by Ian Walker is published by Troubador Publishing Ltd., price £8.99 ISBN 1-905237.

Joanna Robertson

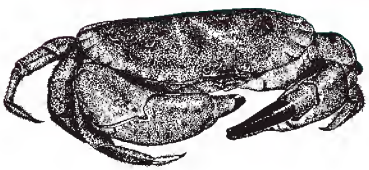
Ydy'r tirlun lleol wedi colli ei flas?

Mae ffordd bell i fynd os ydym am lenwi'n byrddau a'n boliau gyda bwyd sy'n tarddu o'r tirlun o'n cwmpas. Ar waethaf ymdrechion glew un cogydd o Lundain i ganfod bwydydd o fewn 30 milltir i bentref Aberdaron, cyffredin ar y naw yw'r ymdrechion eraill ar Ben Llŷn i greu diddordeb a brwdfrydedd mewn bwydydd lleol. Hyd yn oed yn nhref Pwllheli, mae'n dal i fod yn haws i brynu brechdan diwna na pheth o'r cynnyrch bwyd môr sydd ar drothwy'r drws. Mae pobl o bob cefndir yn dyheu am flasu bwyd sy'n cyfleu natur unigryw gwahanol froydd. Nid creu unffurfedd ond cynnal arbenigedd, hynodrwydd a balchder lleol yw'r nod - pa bryd gwnaiff y cynhyrchwyr, y marchnatwyr a'r awdurdodau sylweddoli hynny?

Paul Brazier

Combing the shores for **Sabellaria**

Of all the extraordinary creatures which inhabit the coastal fringe just below the sea, the honeycomb reef worms Sabellaria *are among the most dramatic, creating small reefs with the masses of tubes which they build.* ***NATASHA LOUGH*** *takes up the story.*



I had been working for the Countryside Council for Wales's intertidal team for a couple of years before I first saw the honeycomb reef worm *Sabellaria* alveolata. We were on Saundersfoot beach in Pembrokeshire and I got an excited phone call from the other pair of surveyors at the far end of the beach - "Tash, there's *Sabellaria* here!". I had heard a lot about it: the Cardigan Bay and Pen Llŷn a'r Sarnau SACs both have extensive areas of *Sabellaria* and had been surveyed before I arrived, so I was very impressed by the small hummock of reef at my feet. But this was nothing compared to what I was going to see over the next few years.

The worm gets its name from the honeycomb-like aggregations (reefs) of tubes that it builds. The worm is about 30-40 mm long and lives in tubes of sand grains it has cemented together. The tubes can be 100-200 mm long and grow on top of each other to form hummocks that can be almost a half a metre high. The head and tentacles protrude from the characteristic porch opening of the tube when it is covered by water, allowing the worm to filter particles of food from the water column.

There are two species of *Sabellaria* found in the UK. *Sabellaria alveolata*

is primarily intertidal, extending from the mid- to lower shore, although subtidal populations are found within the Severn estuary. The other species, *Sabellaria spinulosa*, is predominantly found below low water, although individuals can be found on the shore. Both species require suspended sediment and water movement to build their tubes and, because of this, *S. alveolata* is mainly found on moderately exposed beaches. The larvae are known to be chemically attracted to existing areas of reef, whether these are living or dead, which means that even old degraded areas of reef are important for the establishment of new reef. The reefs are potentially vulnerable to activities that affect the availability of sediment, such as aggregate extraction and coastal developments, and to direct impacts such as trampling, as discussed by Holt, et al. 1998.

Sabellaria is not just an impressive animal because of the structures that it forms, it is also important from a conservation point of view. The reefs, which have a life-cycle of around seven years, can consolidate mobile shores, typically boulder shores, by cementing the boulders together with their sand tubes. Initially they are very uniform with tightly packed tubes that do not provide many habitat niches, but as they mature and begin to degenerate they create pools and crevices which are colonised by algae and other organisms, increasing the heterogeneity of the shore.

Sabellaria is essentially a south-western species, found in the UK from the Solway Firth in northern England / Scotland, extending south to Lyme Bay, and along the Atlantic coast to the Mediterranean Sea. It is flagged up as a Biodiversity Action Plan habitat and is also considered nationally important by the Joint Nature Conservancy Council (JNCC).

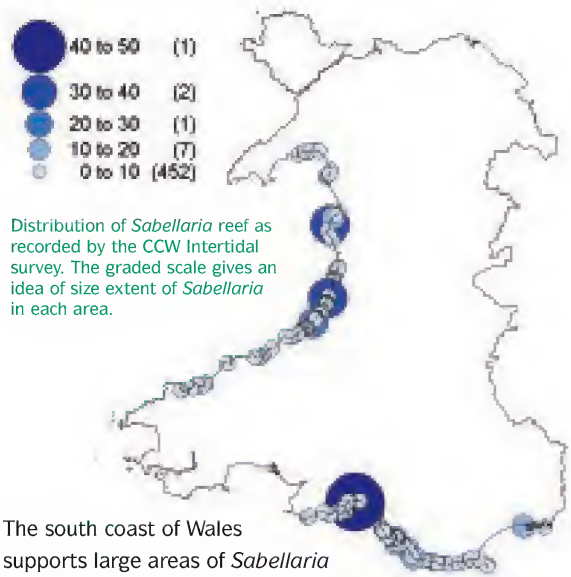
What do areas of *Sabellaria* look like?

Cunningham et al. carried out a survey of *Sabellaria* reefs around the UK in 1984. They described three types of aggregation of *Sabellaria* tubes, the differences usually caused by the topography or general character of the shore:

- sheets - low lying structures that tend to be found on flat, sandy beaches;
- hummocks - these radiate from the point of settlement and are found on more mixed, boulder shores, sometimes with the appearance of large mushrooms;
- reefs - formed when hummocks fuse together, and generally found on mixed boulder shores.

Where can I find them in Wales?

From 1996-2006 CCW carried out an intertidal survey of the entire coast of Wales, mapping its biological communities. The survey gathered information on non-native species, artificial substrata and species of conservation interest. Because of this, CCW has accurate distribution maps of all intertidal communities in Wales, including *Sabellaria* reefs.



Distribution of *Sabellaria* reef as recorded by the CCW Intertidal survey. The graded scale gives an idea of size extent of *Sabellaria* in each area.

The south coast of Wales supports large areas of *Sabellaria* reef, around Porthcawl and the Glamorgan coast, with the largest area being found in Swansea Bay. *Sabellaria alveolata* does not always form a reef structure, so the distribution of the species is greater than the map shows. For example, it has often been found in sand-scoured caves in north Pembrokeshire.

The following is a brief description of the reefs around Wales:

Cardigan Bay

Sabellaria reefs are found along most boulder and bedrock platform shores in Cardigan Bay and along the southern shore of the Llŷn Peninsula /Pen Llŷn,

and most are good examples of how the reefs have stabilised mobile shores. In some cases there are extensive sheets that form a blanket over the shore, but in others the reefs have bound boulders together, impeding water flow across the shore and increasing the number of pools and diversity. *Sabellaria* reefs are often overgrown with fucoid (seaweed) algae such as serrated wrack *Fucus serratus* and bladder wrack *F. vesiculosus*. Other common species include beadlet anemone *Actinia equina*, common periwinkle *Littorina littorea* and red algae *Mastocarpus stellatus*.

Monica Jones

Brandy Cove, Gower.

Gower

Around the Gower coast *Sabellaria* is found as hummocks and reef on bedrock. As is typical for most of Gower, there is a high abundance of turf-forming red algae, particularly pepper dulce *Osmundea pinnatifida* and *Rhodothamniella floridula*. It is often found within crevices or on the leaward side of bedrock pinnacles where there is more shelter.

Swansea Bay

Swansea Bay has some of the most extensive areas of *Sabellaria* reef in Wales. One area mapped was over 44 ha in size. An unusual feature here was the competition with mussels *Mytilus edulis*. This type of co-existence was not recorded anywhere else in Wales. The situation appeared to be dynamic, with mussels overgrowing *Sabellaria* reef and vice versa. Large areas of pure *Sabellaria* were found, as were mussel beds. A variety of age classes in the reefs were observed, with very new growth of *Sabellaria* along with old, degraded reef covered in ephemeral algae. The eastern side of Swansea dock was particularly interesting, not only for its extensive reef system, but also along the lower shore, where cobbles were colonised with large sponges and keelworm *Pomatoceros sp.*. The reef was interspersed with

Monica Jones

Sabellaria sheets at Aberarth.

Kathryn Birch

Margam sands, Port Talbot

Paul Brazier

Sabellaria and mussels in competition in Swansea Bay

numerous rockpools supporting hydroids. Further east, around Port Talbot, it seemed that every piece of hard substrata was covered in *Sabellaria*, whether this was sea defences or wrecks.

Glamorgan

From Porthcawl eastwards the reefs tend to be fairly unusual. *Sabellaria* seems to occupy every possible crevice, often clinging on in caves and faults in limestone platforms. Mid to lower shore bedrock was dominated by *Sabellaria* often with *F. serratus* and the brown alga *Cladostephus spongiosus*. Lower shore areas are very interesting: the actual reef is colonised by large sponges and sand-encrusted ascidian (sea squirt) *Polycarpa gracilis*. These can be so dense that it is hard to tell whether there is actually any reef underneath. These areas were particularly favoured by crabs, including edible crab *Cancer pagurus* and hairy crab *Pilumnus hirtellus*. The pools here, instead of being full of algae as is found further west in clearer waters, are dominated by bryozoan turf. Species commonly found were *Bowerbankia citrina* and *Anguinella palmata*.

Monica Jones

Diverse reefs at Porthcawl

Sully Island and the Severn Estuary

The influence of the turbid waters of the Severn estuary becomes more apparent at Sully Island. Red algae are almost absent, as are spirorbid worms on fucoid fronds. The *Sabellaria* here is just a crust on the bedrock with fucoid growth. In the estuary itself there are only a handful of areas where *Sabellaria* is found, again only as a crust with very little associated species. Near Goldcliff there are mostly empty worm tubes on cobbles. No live worms were found on bedrock at the second Severn crossing, and the tubes form only a very sparse crust.

Wales has a particularly diverse and extensive resource of *Sabellaria* reef. These reefs add to the biodiversity of our shores by providing habitats for

Natasha Lough

Hairy crab

Crwybrau tywod arfordir Cymru

Mae tiwbiau tywod y llyngyren ddiliau (Sabellaria alveolata) yn ffurfio palmentydd, twmpathau a riffiau ar hyd glannau Prydain. Mae'r ffurfiau hyn i gyd yn bresennol o gwmpas arfordir Cymru. Dau fath o lyngyr diliau sydd ym Mhrydain, y naill yn byw'n bennaf rhwng marc penllanw a'r marc distyll, a'r llall islaw marc llanw isel. Oherwydd gwaith arolwg manwl, rydym ni'n gwybod yn union lle mae riffiau'r llyngyren ddiliau ar hyd ein glannau. Mae'r rîff mwyaf ym Mae Abertawe, ond mewn ardaloedd eraill, fel Pen Llŷn, mae'r llyngyr yn ffurfio blanced eang, gan 'ludo' clogfeini at ei gilydd. Ac ar hyd yr arfordir i'r dwyrain o Borthcawl mae'n anodd gweld y rîff o gwbl o dan y tyfiant trwchus o wymon, sbyngau a chwistrellau! Saith mlynedd yw cylch bywyd y riffiau. I gychwyn mae'r tiwbiau'n tyfu'n dynn ac yn unffurf, fel pibau organ. Ond wrth iddynt heneiddio a dechrau pydru bydd digonedd o gilfachau a phyllau yn cael eu creu ar gyfer pob math o fywyd morol arall. A hyd yn oed pan fydd y riffiau wedi marw byddant yn dal i ddenu'r larfâu, drwy ddull cemegol, i setlo a chychwyn creu tiwbiau o'r newydd.

Paul Brazier

Sponges and Polycarpa.

numerous species. Much of this reef is within a SSSI or SAC, although not all. Please help us conserve our *Sabellaria* reefs by acting responsibly on the shore. *Sabellaria* is sensitive to trampling so try to avoid walking on it.

All data from CCW's intertidal survey is available from CCW. A handbook on the methodology has been published (Wyn, et. al., 2006) and a summarising report of the whole project is to be published in April 2007. For more information contact the CCW enquiry line 08451 306 229 or email enquiries@ccw.gov.uk

Natasha Lough *was a member of the intertidal survey team for eight years and is still working for CCW as a subtidal ecologist and SAC monitoring officer.*

Thanks to Kathryn Birch for help with this article.

References

1. Cunningham, P.N., Hawkins, S.J., Jones, H.D. & Burrows, M.T. 1984. *The Biogeography and Ecology of Sabellaria alveolata*. NCC CSD Report, No 535.
2. Holt, T.J., Rees E.I., Hawkins, S.J., Seed, R. 1998. *An overview of dynamic and sensitivity characteristics for conservation management of marine SACs*. Biogenic Reef (volume IX), Scottish Association for Marine Science (UK Marine SACs Project). 170 pages.
3. Wyn, G., Brazier, P., Birch, K., Bunker, A., Cooke, A., Jones, M., Lough, N., McMath, A. and Roberts, S. 2006. *Handbook for Marine Intertidal Phase 1 Biotope Mapping Survey*.

Peter Wakely/English nature

Lower Plants

set for a higher profile

Slime mould *Fuligo septica*

After 33 years working for the Countryside Council for Wales and its predecessor bodies, RAY WOODS has just joined the staff of Plantlife, the plant conservation charity with a remit to encourage us all to take a fresh look at the lower plants of Wales and renew our efforts to conserve them. He explains why they are so important.

If diversity is the spice of life, Wales is probably the spiciest country on this wonderful planet, at least if you were to measure it by the number of known lower plants species. 'Lower' is perhaps an unfortunate term for all the plant-like organisms other than the ferns, conifers and flowering plants. They are only 'low' in that they mostly evolved first and, in a representation of evolution as a tree, appear low down in its branching structure. They are better called 'early' or even 'first' plants. The table below provides a taste of their diversity and why in numerical terms the Welsh flora is so important.

They were well established when the higher plants evolved and only recently have we come to appreciate the intimate and generally mutually beneficial relationships that have been forged between higher and lower plants. Without

Peter Wakeley/English Nature

Yellow bird's nest

these relationships evolution may have taken a very different course. For example, fossils of some of the earliest vascular (higher) plants, over 400 million years old, clearly show fungi growing in their cells. Almost identical-looking fungi are found in many higher plants today and are known to be essential in helping the higher plant take up phosphates from the soil. These early aquatic higher plants were also probably using fungi in a mutually beneficial way, housing them in branched root-like rhizomes so the fungus could grow out into the sediment and more efficiently forage for minerals. The structures pre-adapted these aquatic plants for life on the land when the rhizomes easily evolved into roots to forage for water as well.

Such relationships were so beneficial to both parties that it is now difficult to find a higher plant that does not encourage the growth of one or more fungi within it. The benefits can be quite surprising. The story of mycorrhizal fungi is well known. They grow in and on roots, getting sugars from the higher plant and in return their long thin mycelial threads more effectively harvest nutrients from the soil to be passed back to the host plant. The nutrients can, however, come from less obvious sources. Recent work in Scandinavia has shown that pine trees get significant quantities of nutrients from springtails, a tiny soil arthropod. The mycorrhizal fungus on their roots attracts springtails by a special chemical and traps then on sticky knob-like outgrowths on its mycelium. It grows into and digests the springtail, passing the nutrients obtained back to the tree. The well-fertilized tree grows better and can supply the fungus with more sugars, so it too grows better and can trap more springtails.

The relationship has not, however, always evolved in a mutually beneficial way. Some higher plants have exploited the fungus. The yellow bird's nest and the bird's-nest orchid are two examples amongst many. They have given up photosynthesis and instead get most of their energy from the fungus whilst providing no obvious service to the fungus in return. For years it was thought the fungus obtained its nutrients by breaking down the organic matter in the soil. We now know that the same fungus is mycorrhizal on nearby tree roots and the yellow bird's nest and the bird's-nest orchid are in fact parasites on the tree, using the unwitting fungus as a piping system to steal materials from the tree.

Now that it is clear that mycorrhizal fungi can link very different sorts of plant together, whole ecosystems

have to be viewed in a different light. That wonderfully diverse hay meadow with as many as 30 or 40 higher plant species in a tiny area is not quite the same battleground of competing species as we once imagined. Link them all together through fungi and they become a cooperative venture. If one plant does well its nutrients get shared out. The meadow in effect functions as one complex, interdependent organism. Even the seedlings can now be fed by the mother plant if its mycorrhizal fungi stretch out to reach them.

It is not at all surprising, then, that if you dowse the meadow in artificial fertilizers, the diversity developed through cooperation is destroyed. It is all too apparent that recreating this diversity will not be easy since it is not just a matter of sowing a few seeds, but involves re-establishing the interconnectivity through fungi that in nature may have taken hundreds of years.

This is just the tip of an amazing iceberg of lower and higher plant interconnectivity. As we learn to extract and recognise fungal chromosome material, it is turning up in a bewildering array inside higher plants. Mutualistic fungi live in most plants. Here they synthesize all sorts of substances, the value of which we can mostly only guess at. The little research undertaken has identified substances that repel bacteria and other potential pathogenic organisms. Other materials provided by the fungus protect the host plant from herbivores by

Liz Fleming-Williams

Hay meadow - one complex, interdependent organism?

either poisoning them or repelling them. Special molecules released when a plant is damaged can be detected by the fungi in nearby plants and the appropriate chemicals synthesised in greater quantities in advance of an attack.

Bracken appears to contain an enormous number of fungi and it is tempting to suggest that it may owe its success to these relationships. Evolution must also be viewed in a new light. That bracken rarely reproduces sexually ought to put it at a disadvantage, yet this need not be the case if its mutualistic fungi can rapidly evolve to meet the challenge of a new herbivore or pathogen. What we once viewed as single organisms now have to be considered as tiny ecosystems, and the whole business of conserving plants has to be viewed in different way.

I hope by these few examples you can understand why I find lower plants so fascinating and why we need to conserve them. I could have highlighted the exceptional marine and freshwater algal floras, the

Joyce Fleur

Nail fungus *Poronia punctata*

CCW

Scutellinia scutellata

wonderful mosses, liverworts and lichens of the temperate rain forests of west Wales, the lichen floras of its ancient trees or the internationally important fungi of sand dunes and old grasslands. We are spoilt for choice.

Chwifio'r faner dros blanhigion diflodau

Mae cyfoeth o blanhigion diflodau yng Nghymru. Maen nhw'n greiddiol i systemau sy'n cynnal bywyd ar y ddaear hon ac mae eu gwerth i ddyn yn aros i gael ei ddarganfod yn llawn. Mae'r berthynas ryfeddol sy'n bodoli rhwng ffyngau a phlanhigion eraill wedi datblygu dros ganrifoedd maith, ond dim ond yn ddiweddar ry'n ni wedi dod i ddeall ei harwyddocâd. Yn wir, cymaint yw mantais y berthynas yma i'r naill blanhigyn a'r llall fel ei bod hi'n anodd bellach canfod planhigyn sydd heb ffwng yn tyfu ynddo Cyfnewid maeth a siwgr yw hanfod y berthynas yn y rhan fwyaf o achosion, er bod ffyngau hefyd yn helpu planhigion i wrthsefyll organebau pathogenaidd a difrod. Ond gwyddwn nawr mai ffyngau yw'r grym tanddaearol sy'n uno cymuned o blanhigion yn uned gydweithredol. Hawdd yw difa'r amrywiaeth botanegol a grëir yn sgil y cydweithrediad hwn, ac anodd iawn yw ei adfer, gan fod hyn yn golygu ailsefydlu'r cysylltiadau ffwngaidd. Rhaid ystyried planhigion nawr nid fel organebau unigol ond fel ecosystemau bychain ac mae hyn yn rhoi gwedd newydd ar gadwraeth planhigion.

My role in Plantlife over the next few years is to fight their corner. They are not just a curious evolutionary dead end of little more than academic interest. They are at the heart of the human life support systems of this planet. We have also barely begun to find uses for the extraordinary array of chemicals they produce. Antibiotics are the best understood substances, but fungi were the source of immunosuppressant drugs, making organ transplants possible, and a growing market exists for fungi that improve the performance of our own immune systems. Having only just begun to appreciate how important mutually beneficial relationships between lower and higher plants are, the potential for improving the performance of crop plants is enormous. To achieve this we have to conserve ecosystems large enough to accommodate not just the higher plants but also the diverse, mutually beneficial relationships they have developed with lower plants over millions of years, and to ensure that enough resources are made available to research and that the information gained is put to good use. If all we learn is the value of cooperation, it will be money and time well spent.

NUMBER OF SPECIES				
	Wales	British Isles	World	Percentage of World species in Wales
Fungi	?	12,000	1.5 million?	?
Lichens	1,300	1,700	13,500	10
Slime Moulds	115	400	800	14.4
Mosses & Liverworts	780	1,045	25,000	3
Higher Plants	1,078	1,511	250,000	0.5

Ray Woods *is author of the* Flora of Radnorshire *and a frequent writer and broadcaster on botany in Wales, with a special interest in Lower Plants. As an Area Officer for CCW he provided specialist advice on bryophytes, lichens and fungi, and helped put waxcaps on the map. He is now Plantlife's Lower Plants champion.*

FIELD GUIDE TO THE DRAGONFLIES OF BRITAIN AND EUROPE
Klaas-Douwe B Dijkstra
Illustrated by Richard Lewington
British Wildlife Publishing 2006
Hardback £30, Softback £21.95

Dragonflies are sometimes said to be the raptors of the insect world, meaning that they attract our admiration in the same way. There are a lot more species of Odonata than of raptors in Wales and, to add to the fun, the different sexes can look like different insects, and when immature their colours can also be different. So, more than with raptors, it is essential to have a good field guide to hand when getting to know this fascinating group of insects.

Fortunately there are several good guides to the British dragonfly fauna on the market, including an excellent one from the same stable: this new guide extends the immaculate artwork with which Richard Lewington illustrated the Great Britain and Ireland Field Guide. If you marvel at the beauty and accuracy of Lewington's illustrations, you will be in for a feast with this new guide.

It is remarkable how much is contained in a little over 300 pages. For example, the regional guide to dragonfly-rich areas covers forty countries, including Turkey and Morocco. Clear maps accompany the species, and the wider sweep of the book gives useful context to our own 33 species in Wales; these make up about 20% of the limited European and north African fauna covered by the book, which points out that, worldwide, there are almost 5,700 species of dragonfly known in the world today.

The quality of the text, the reproduction and nearly 1,000 superb illustrations mean that this Field Guide is setting standards which future guides will have to strive hard to meet.

GOWER
Jonathan Mullard
Collins New Naturalist 2006
Hardback £45
Softback £25

The prestigious New Naturalists series is approaching its hundredth volume in fine form and full colour. Early titles like the first one, E.B. Ford's *Butterflies*, sold in tens of thousands: peacetime brought with it an urgent appreciation of the natural beauty of the country and a thirst for knowledge. The uncertainties of the later decades of the 20th century, including those within the publishing industry itself, saw a marked decline in the number and quality of titles published in the series, although they remained hugely collectable. Recent doorstop volumes, such as *Fungi* (see *Natur Cymru* 16:42) and *Bumblebees*, which are nearly 600 pages long, manage to cling on to the original brief for the series, aimed at the intelligent layman, interestingly written and not too technical. However, the vast growth in technical information, and authors' understandable desire to include every latest bit of research and show that they are on top of their subjects, has made this a challenge.

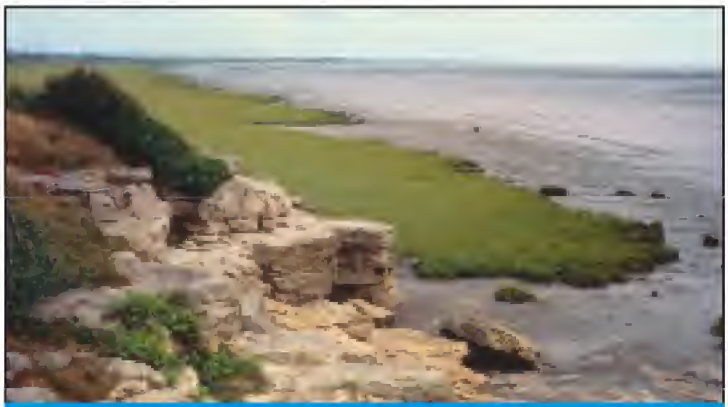
Regional volumes make up a small but valued part of the series, and it is good to have this Welsh one as the 99th. Its author, Jonathan Mullard, weaves everything from climate to the sociology of place seamlessly to evoke the special quality of Gower and introduce its evolving landscape. Perhaps because you have to break through the urban sprawl of Swansea to get there, Gower can seem more island than mainland. Nine chapters describe the different elements of the landscape and form the meat of the book. A description of the plant communities of the southern cliffs includes four pages on the discovery and fortunes of yellow whitlow grass, an alpine flower which grows nowhere else in Britain. Both informative and discursive, such natural (and human) history forays, such as the oysters and turtles of the surrounding sea, and recent habitat management issues, keep the story of Gower rattling along. The final chapter considers whether the protection of Gower is adequate, and has an unequivocal conclusion.

Jonathan Mullard has the knack of presenting a wealth of scholarly detail with a lightness of touch and clarity which fully delivers the series' original aim. Whether you live on Gower, visit it or know of it only by name, this book will hold your attention: simply, it is a good read. Beautifully illustrated, it is a worthy addition to any naturalist's bookshelf, and to the literature on nature in Wales.

James Robertson

Ivor Rees

Marine wildlife, man-made structures and materials



Peter Wakeley/English Nature

Feeding grounds along the Severn estuary

Expressions of interest within the Welsh Assembly Government for a Severn tidal power barrage prompt much burrowing in the archives for reports of the wide ranging scientific studies done a couple of decades ago. Most of those now in the environmental establishment were not around last time the barrage was a hot topic. Simple searches of the web often fail to pick up the valuable grey literature reports written before pdf versions were easily retrieved.

Nevertheless, earlier studies of the ecological effects of barrages should not be overlooked. I recall that when a similar barrage was being considered for the Bay of Fundy there were preliminary forecasts of measurable increases in extreme tide heights at Boston, several hundred miles away across the Gulf of Maine. With a project as large as a Bristol Channel barrage, the calls for specific impact studies could be almost infinite. At least the investigations of a generation ago should help identify the critical gaps in knowledge. Potential impacts on wading birds upstream may grab the headlines, but in terms of marine ecosystems, construction methods need to be considered as much as the form of a final structure. In the case of the much smaller Rance barrage in northern France, the whole inlet was closed off from exchange with the sea for a couple of years, becoming a freshwater lake. It took a very long time for a normal marine fauna to re-establish. More likely here, large concrete caissons might be floated in, sunk and filled with sea-dredged sand. The strain on the already limited marine aggregate resources and the impacts of dredging could become a significant factor.

Although the response of most naturalists will be concern about the modification of marine habitats, it is worth remembering that, more by chance than design, there are several places around Wales where particularly interesting habitats were created by man. When the great engineer Thomas Telford planned his causeway to Holyhead Island on the then strategic mail coach route to Ireland, he would not have had to consider marine ecology. The Stanley Embankment causeway, with its limited link to the open sea through a culvert, created conditions for the most extensive eel-grass (*Zostera spp.*) beds in the whole of Wales. Indeed, most of the larger brackish pools now designated as SSSIs with very scarce species were at least partly artificial in origin.

While on the topic of artificial structures, let's not forget the old saying that 'nature abhors a vacuum'. As yachtsmen know to their cost, almost anything put in the sea will soon have organisms living on it. Most barnacles make little distinction between natural rock, rock armouring of breakwaters, weathered concrete, buoys or boats. An interesting exception is a warm water barnacle now turning up in Welsh waters. *Solidobalanus fallax* was originally found only on queen scallops, sea fans and other living things, but never on rock. Recently it has been found to settle on the plastic twine of lobster pots and on sunken plastic sacks. The cormorants roosting on the anemometer towers of offshore wind farms are another example of nature using whatever man provides. So for ecologists it is worth remembering that there is still interest to be had in man-made marine habitats, at scales from barrages and towers down to single strands of man-made fibre.

***Ivor Rees** is a marine biologist and formerly was senior lecturer in Ocean Sciences at the University of Wales, Bangor.*

Mammal news

Kate Williamson

Wales Mammal Conference 2006

For a part of our wildlife heritage that is often the poor relation in the bigger scheme of things, it's amazing how much work and effort is going on to help conserve the mammal fauna of Wales. This is being done by a huge variety of dedicated individuals as well as various organisations. What is more, most of this work is real cutting-edge stuff.

Over two days at the beginning of July, delegates at the Wales Mammal Conference in Aberystwyth were treated to a range of excellent talks, which helped shed light on some of the important issues that affect mammals in Wales and the rest of the UK. The high level of enthusiasm, knowledge, commitment and skill amongst mammal workers across the board was obvious.

We started off with a fascinating review of the cultural and historical references to the Welsh mammal fauna. Are polecats really a native animal? How long ago is it since beaver last roamed our waterways? The new science of 'ecological ethology' showed what an important role mammals have always had in this country.

The fundamental job of finding out which mammals we have in Wales and where they are, is far from simple. There have been a number of novel methods designed for locating and counting them, demonstrated by the Mammal Society water shrew survey and the Snowdonia Mammal Atlas project amongst others. The Mid Wales Red Squirrel project has shown that numbers of one of Wales' rarest mammals persist in relatively large areas of Powys, but where do we go from there in terms of conservation?

We are starting to discover and understand the threats to our mammals, both the apparently natural, e.g. porpoises being killed by bottlenose dolphins, and the man-induced, such as road deaths. Innovative ways to counter and reduce these threats are continuously being devised. We saw some excellent, practical examples of this with the various roost protection and enhancement methods suggested for bats by John Messenger of the Vincent Wildlife Trust.

Sometimes individual animals physically need our help and are brought in to the RSPCA wildlife hospitals for treatment. Research conducted post-release by Rob Scrivens and his team at Stapeley Grange has shown that they have a very good chance of being able to survive and thrive in the wild. Our understanding of other wildlife diseases was enhanced with great talks on badgers and TB and rabbits and RHVD.

I think I can speak for most delegates when I say an exciting and stimulating time was had by all. Once again, our sponsors made it possible to arrange this valuable conferencing opportunity. The Mammal Society also showed their support by being present at the conference and by manning their book stall. There was an encouraging amount of literature displayed from various local mammal groups, bat groups, badger groups and project groups. We hope that the Wales Mammal Group will be able to develop a useful role to further increase support for the valuable work of these people. A huge thank you to all involved and to everyone who attended, bringing with them their ideas and enthusiasm.

See page 48 for Mammal Society Training Courses.

Kate Williamson

Kate Williamson is Biodiversity Co-ordinator for Snowdonia National Park.

Hysbysfwrdd / Noticeboard

If you would like your wildlife event to feature on this page please contact Mandy Marsh on 01248 385574 or email m.marsh@ccw.gov.uk. Please mention Natur Cymru if you attend any of these events.

North Wales Wildlife Trust

LACEY LECTURE

17 Nov *The Ones That Worked* Illustrated talk by Michael Leach, author and photographer, about some of the most charismatic animals he has photographed. Theatr Elwy, Ysgol Glan Clwyd, St Asaph at 7.30. Tickets (£5, £4, £2, £1) from NWWT offices **01248 351541** & **01352 810469**.

Butterfly Conservation

GET MOTHING!

23 Sept *National Moth Night* Moth events in the following areas - please call for details:
Swansea **0870 770 6253**
North Wales **01352 711 198**
Brecknock **01874 658 453**
Monmouthshire **01633 216 599**
Glamorgan **02920 545 521**
Cilgerran **01239 621 600**
24 Sept *Magnificent Moths Morning*
Glamorgan, Kenfig **01656 743 386**
RSPB Ynys-hir **01654 700 222**
28 Oct *Leaf Miner Workshop*
Brechfa, Carms. **0870 770 6153**

Shared Earth Trust

COURSES

16 Oct *Mosses, Liverworts and Lichens - an introduction to lower plant identification* £50. Bespoke courses - please contact for more information. Denmark Farm Conservation Centre, Betws Bledrws, Lampeter, Ceredigion, SA48 8PB Tel: **01570 493358**, **www.shared-earth-trust.org.uk**

Fenn's, Whixall & Bettisfield Mosses NNR

AUTUMN/WINTER EVENTS

28 Sept; 8 & 26 Oct; 12 & 23 Nov; 10 & 28 Dec | *Work days* Help to restore Britain's third largest raised bog 10.30am - 3.30pm. Contact Joan.daniels@english-nature.org.uk 01948 880 362
24 Sept *Fungal Foray on the Mosses.* 2pm at Bettisfield Moss
8 Oct *'A Peat cutter's Life'* 1pm. Stroll around Fenn's Moss with a former peat cutter to learn how life on the Mosses used to be!
15 Nov *'The Fabulous Fungi of the Mosses'* slideshow, 7.30pm, Whitchurch Civic Centre, and **23 Nov,** 7.30pm, Senior Club, Chapel Street, Wem. (No need to book.)
3 Dec *Come and cut a Xmas Tree,* 10.30-1.00pm.

Bookings must be made in advance. Contact Jackie Giles (weekdays **01743 282000 - jackie.giles@english-nature.org.uk**) or Joan Daniels (weekends **07974 784799**), and are free unless stated.

The Mammal Society

TRAINING COURSES

The society runs numerous courses throughout England & Wales. For full details or to book, please contact **training@mammal.org.uk** or **020 7350 2200.**
6-8 Oct *Mammal Identification* & **14 Oct** *Dormouse Ecology & Conservation* at FSC Preston Montford, Shropshire

Common Ground/ Marcher Apple Network

APPLE DAYS

Harvest time celebrations of all things apple - barrels, bobbing, cider, competitions, identification, juice, longest peel, pressing, recipes, tasting, trees for sale. Check details before travelling. For a full list of apple events countrywide contact Common Ground, **01747 850820** or **www.commonground.org.uk.** Apple identification: please take 3 examples of each variety, with twig and leaves attached if possible.
30 Sept Hanbury Hall (National Trust),Worcs, **01527 821214.**
30 Sept-1 Oct Berrington Hall, Leominster, **01568 610593.**
1 Oct Quarry Bank Mill (National Trust), Cheshire **01625 527468**
1 Oct Speke Hall (National Trust), Liverpool, **0151 427 7231**
7 Oct Erddig, Wrexham (National Trust), **01978 355314.**
8 Oct Acton Scott Working Farm Museum, Church Stretton. **01588 674092.**
14 Oct Green Wood Centre, Coalbrookdale, Shrops, **01592 433229.**
14-15 Oct Much Marcle, Herefordshire. **01531 670544.**
15 Oct Norton Priory, Cheshire, **01244 376333.**
21 Oct Lion Ballroom, Leominster. **01568 780886.**
21 Oct Tenbury Wells Town Centre, Worcs. **01684 862432.**
21-29 Oct Llanerchaeron (National Trust), Aberaeron **01545 570200.**

Wales Biodiversity Partnership

AUTUMN EVENTS

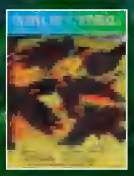
Nature walks, fungal forays, tree planting, moonlight rambles, the folklore of wildlife - there's far too much going on to list here. Check out the WBP website to find out what's happening in your area **www.biodiversitywales.org.uk /www.bioamrywiaethcymru.org.uk** or phone Emily **01248 385599** or Gaynor **01248 385743.**
Here's a taster:
30 Sept *Pembrokeshire Seed Gathering Day for all the family* 10-4pm.
30 Sept *Growing Native Trees from Seed* Warren Woods, Bodfari. 1 day course, £20. Free camping.
1 Oct *Fungus Foray.* Moelyci Farm nr Bangor. Experts on hand to identify your finds. Bring a basket!
18 Oct *Moonlight Meander.* Loggerheads Country Park, Denbighshire. Ideal for all those who don't want to walk in the woods on their own! 7-9pm. Booking essential.
28 Oct *Winter Bird Feeding with the RSPB.* Afan Forest Park, Neath-Port Talbot. Learn about, and make, winter bird cake and bird feeders.
11-24 *Dec Heuldro Gaeaf (Winter Solstice).* Gwydyr Forest, Conwy. Forest Labyrinth purpose-built to create a magical theatre experience. Booking essential.

Diolch am y lluniau i / For illustrations, thanks to:
Kim Atkinson, English Nature, Mandy Marsh, Alastair Robertson

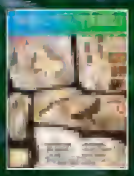
Back issues of *Natur Cymru* (Nos 2 - 19) are available priced £2.50

Number Rhif 13

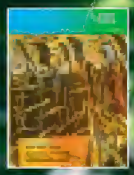
Number Rhif 14



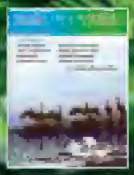
Number Rhif 15



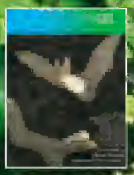
Number Rhif 16



Number Rhif 17



Number Rhif 18



Number Rhif 19

Paul Glen / English Nature

Jeremy Moore

NATUR CYMRU AUTUMN/HYDREF 2006

www.naturcymru.org.uk

£3.50